

FLIGHT

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

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EDITORIAL COMMENT.



WHEN the emergency measures which have been taken by the Government during the present war come to be considered hereafter in their true perspective, the one happy outstanding step to promote greater efficiency, and enable at the same

time the majority of the fighting manhood of the country to take its place at the front, will, we verily believe, prove to be "dilution." Although in this great step towards multiplying the output of our munition and commercial

War Time Dilution.

manufacturing firms we have in mind the invaluable aid which the introduction of "unskilled" labour—especially that of women—to work side by side with "skilled" labour has brought about, we also place very high in the scale of efficiency-building the "dilution" in another direction which has been such a feature of recent legislation towards looking after the "spiritual" side of the community's well-being. The ever-increasing importance of this dilution of our labour powers since we wrote an article a few weeks back upon the subject, has been especially emphasised again during the last few days. To take only one instance, there is the termination of the very reprehensible strike which lasted close on a week at Barrow in opposition to the introduction of the system of diluted labour amongst the engineers, &c., at the works of Messrs. Vickers, Ltd., and which was only settled at the week-end.

Here we had once again the shocking spectacle of a body of men allowing the ordinary trade customs of normal times to stand in opposition to the urgent and vital needs of the Empire, knowing full well—or they should know—that by such action they might, in all probability, be jeopardising the lives of numbers of our men—possibly even their own kith and kin—who are helping with the big push which about the same moment was commencing to free the world of the menace of Hun tyranny. This tyranny was not only to be of a military character, but had every promise of being a substitute under a new guise of ancient slavery for the entire world—including the working-men of every denomination in this country. No truer thing of this war has been said than that it is a people's war, but it seems to be a long, long time before a large section of the workers appears to be able to grasp this significant fact. In helping our men at the front to win through by the necessary plentiful supply of munitions, in every sense of the word, the skilled worker is not only helping the Empire as a whole, he is helping the entire civilised world to obtaining a more generous enjoyment of life, and last, but not least, is laying the foundation for very materially enhancing the position and interests of the workers themselves throughout the Empire in the future. It is towards this same end that the decisions have been come to at the recent Paris Economic Conference. By carrying these out upon their broadest principles no section of the community is likely to benefit more materially than the industrial side of the country and its millions of workers. Hitherto the greatest cause of low wages, want of employment, and all their consequent evils has been the steadily increasing competition from the German peoples in dumping their inferior state-bounty-fed goods all over the world, and especially into England. All this has been to the detriment of our vast army of workers, and leaving out of the question the one great principle of the right of small nations to exist as free and independent states, for which Great Britain entered this horrible European conflict, the worker of the world has all his future interests bound up in the outcome of the war; victory spells for him prosperity in the days to come, with the chief breaker down of prices and wages either entirely eliminated or so handicapped as to be for many years powerless to continue his economic slavery; to lose the war or to allow the end to be a compromise, means that the lot of the people would be seriously worse than in the past. Such a climax to this war of nations is therefore unthinkable. But with such a doctrine as

opposition to greater output whether by dilution of labour or otherwise, being able to hold good for but a week, is a very trenchant argument in favour of the powers under the Defence of the Realm Act being brought into operation, if only in the interests of the very body of men who are so short-sighted and obstinate as to fight against their own interests. On all sides there is clear evidence of the helpful work which has been possible by the organisation of the unskilled workers and their introduction into the factories for some particular job. Particularly in most of the "shops" female labour has been found entirely suitable and productive of the best results. How it is possible, therefore, under the present conditions that resistance from the men can still obtain is almost beyond understanding. When once the position is really grasped by the men, however, it is gratifying to find that they respond in the only possible way, and the thanks of the nation are due to those statesmen who are bringing their personality to bear in inducing the masses to appreciate the true state of affairs. It was almost entirely due to Mr. A. J. Balfour that recently the Clyde difficulties were smoothed over, and this principle of dilution recognised as a temporary war measure. Mr. Balfour's arguments, which were unanswerable and brought about peace in the Clyde yards, were put forward in a letter for the benefit of the malcontents as follows:—

"The serious shortage in the number of skilled men available for Admiralty work is causing the Board of Admiralty much anxiety. There is one way, and only one way, in which this evil can be mitigated, namely, by what is called the dilution of labour. This, through the patriotic co-operation of the skilled men, has been applied with the greatest success in the engineering shops in the Clyde district. It is all important that it should be extended as soon as possible to the shipyards also, and the Commissioners appointed for the purpose have accordingly been requested to undertake the necessary arrangements with all possible expedition.

"I should be glad if you will convey both to employers and employed my sense of the urgency of this step. During the period of the war nothing short of an ample scheme of dilution will meet naval requirements and secure national safety.

"I have watched with close interest and high appreciation the loyal way in which the skilled men on the Clyde have assisted dilution in the engineering shops. I do not for one moment doubt that their patriotic example will be followed by those engaged on national work in the shipyards."

The desired result followed this appeal of the First Lord of the Admiralty, and it is to be hoped that with the smoothing out of the Barrow episode, the last of this insane and unpatriotic agitation has been heard. In regard to the willing work of women, it is highly ungenerous for difficulties to be put in the way of their co-operation, in view of the splendid record which they have already achieved in almost every direction. The tribute on Monday of the Postmaster-General to their level-headedness under trying conditions was well earned. Said Mr. Pease, in giving a *résumé* of the past work of the Post Office: "When the Zeppelin raids have been anticipated, sometimes when they have been going on, the women have come out of their homes to their work—even when bombs were dropping. They have played an important part in the scheme of air raid warnings, and have set a very good example to the whole country."

It is not only under fair weather conditions that woman, as "diluted" labour, has made her mark, but wherever her efforts have been allowed proper scope, it has been

found that the many supposed objections to her doing her bit for the country have very quickly melted into thin air. Once more, therefore, we urge one and all manufacturers to study this great scheme of diluted labour to its utmost length, so that there may be no possibility of finding the supplies of munitions—and in this category is included aircraft—falling short, just at the critical moment when the call may prove to be more urgent than ever for completing what we all hope for presently—a sweeping and unequivocal victory for Great Britain and her Allies. There is a Central Advisory Committee department on Women's War Employment at the Board of Trade, Whitehall Gardens, and anyone interested in promoting its objects will find it well worth while getting into communication with the Executive Chairman. It is not only a patriotic movement, but a commercial proposition in addition.

* * *

Aircraft Insurance.

An echo of the Government Insurance Scheme against aircraft risks was heard in the House last Monday when Mr. J. A. Pease, in dealing with the Post Office Vote, made a short statement in regard to the result of the policies for small sums, ranging from £25 to £75 each, which, under a special arrangement, are available for taking out at any post office in the Kingdom for a very small premium. The amount of business done under the larger scheme may well be imagined from the figures of these small policies, which have proved such a source of comfort to the many less wealthy owners of either furniture or dwellings. Policies within the range already mentioned aggregate no less than £1,600,000, taken out by 168,000 individual owners, the premiums amounting to £10,000 per annum. These figures go up to June 21st last, and from a question put by Mr. Wing—an appropriate name to be associated with anything pertaining to air work—the amount of disbursements for damage done may shortly be available. Perhaps one will then be better able to estimate whether the announcement made some little while ago by Mr. Runciman, that although he did not propose to increase the rates for this class of insurance, he thought it would not be wise to reduce them, was founded upon too conservative a margin or no. It would not, even if the fund be not drawn upon at all, perhaps, be opportune to probe this little matter too deeply, as after all, the premiums received all help to reduce taxation in other directions for paying the cost of the war, and each individual holder of a policy cannot but be thankful if he is not called upon to impinge upon the accumulated funds. "FLIGHT" will be the more pleased for both reasons, the greater balance there remains for the National Exchequer when a halt is called, by reason of the whole scheme being the creation of this journal. Our original demand in September, 1914, was for the scheme to be a National liability to compensate for all damage done by aircraft raids, or failing that view being taken by the Government, then to be made a National asset, by the inauguration of a National Insurance scheme with a low popular premium. The latter alternative was selected by the Cabinet in July, 1915. We can imagine that there is still likely to be an appreciable increase in new policies—in most cases, in all probability, when too late—as it is hardly conceivable that the "Germ Huns" will fail to make some further efforts to wreak their rage and venom upon the inhabitants of these Isles, even if only by way of expiring spasms of unsatisfied hatred. Although in that case they *might* find that—but that is another story.

The British Air Service

PER ARDUA AD ASTRA

UNDER this heading are published each week the official announcements of appointments and promotions affecting the Royal Naval Air Service and the Royal Flying Corps (Military Wing) and Central Flying School. These notices are not duplicated. By way of instance, when an appointment to the Royal Naval Air Service is announced by the Admiralty it is published forthwith, but subsequently, when it appears in the LONDON GAZETTE, it is not repeated in this column.

Royal Naval Air Service.

THE following appeared among the Admiralty announcements of the 27th ult. :—

A. Y. Maddock granted a temporary commission as Sub-Lieutenant, R.N.V.R., with seniority June 26th.

Temporary Sub-Lieut., R.N.V.R., F. G. Browne appointed as Probationary Flight Sub-Lieutenant (temporary), and appointed to "President," additional, for R.N.A.S. To date June 25th.

The following appeared among the Admiralty announcements of the 28th ult. :—

The undermentioned have been entered as Probationary Flight Sub-Lieutenants (temporary), seniority of July 2nd, and all appointed to "President," for R.N.A.S. : F. H. M. Macintyre, F. V. Branford, T. W. S. Harris, A. B. Hill, H. J. R. Maitland, W. G. Westcott, R. W. Greenwood, F. V. Hall, D. L. Wilson, H. G. Gower, P. Wood, and W. W. Wilkinson.

The following appeared among the Admiralty announcements of the 2nd inst. :—

C. T. Brimer, entered as Probationary Flight Sub-Lieutenant (temporary), seniority of June 7th, and appointed to "President," additional, for R.N.A.S.

Temporary commissions (R.N.V.R.) have been granted as follows : Lieutenant—T. A. Parker, seniority of June 30th ; Sub-

Lieutenants—C. F. Brightman and C. Chapman, both seniority of June 30th, and all appointed to "President," additional, for R.N.A.S.

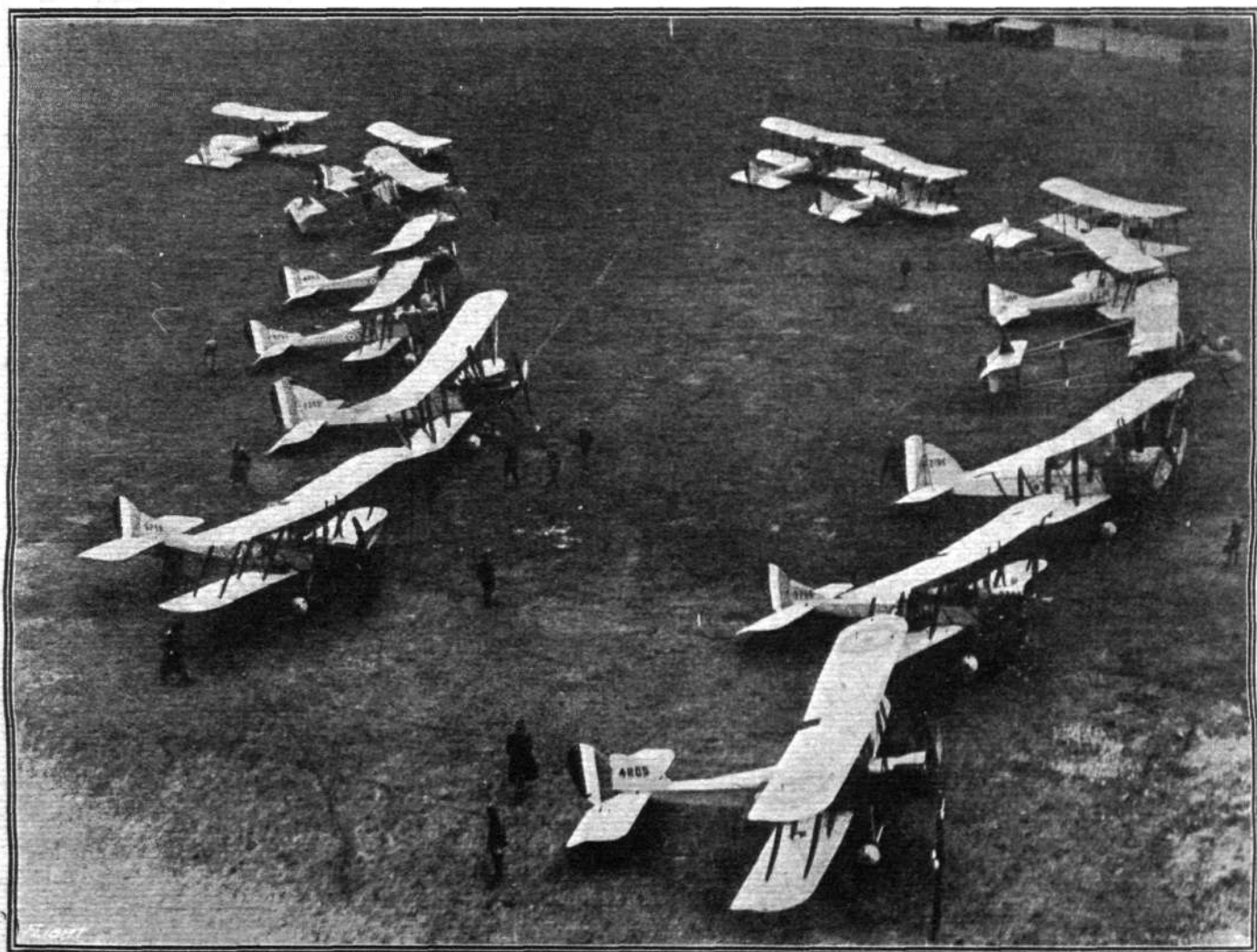
Royal Flying Corps (Military Wing).

THE following appeared in the *London Gazette* of the 27th ult. :—

Squadron-Commander.—Capt. J. L. Kinnear, L'pool R., from a Flight Commander, and to be Temporary Major whilst so employed ; June 1st, 1916.

Flight-Commanders (from Flying Officers, and to be Temporary Captains whilst so employed).—June 1st, 1916 : Temporary Second Lieut. C. H. Elliott-Smith, General List ; Lieut. F. W. Stent, Special Reserve ; Second Lieut. H. I. F. Yates, Special Reserve ; Second Lieut. F. Hudson, Special Reserve ; Second Lieut. A. W. Briggs, Special Reserve. June 10th, 1916 : Temporary Lieut. A. J. Evans, General List ; Lieut. L. H. T. Sloan, Cam'n. Highrs. *From Flying Officers* ; June 12th, 1916 : Temporary Capt. R. Burdon, General List ; Second Lieut. S. Dalrymple, Special Reserve, and to be Temporary Captain whilst so employed.

Equipment Officer.—Lieut. C. W. Willcox, Special Reserve, from an Assistant Equipment Officer, and to be temporary Captain whilst so employed ; June 13th, 1916.



A batch of presentation aeroplanes lined up in England ready to be flown overseas. (Official photograph issued by the Press Bureau.)

Memoranda.—Brevet Major (Temporary Lieut.-Colonel) C. J. Burke, D.S.O., R. Ir. Regt., relinquishes his temporary rank; June 18th, 1916. The undermentioned to be Temporary Second Lieuts. for duty with the R.F.C.; June 17th, 1916: Corpl. Frederick Norman Insoll, from Blundell's School, O.T.C.; Corpl. Edward Rodney Wright, from 2nd Co. of Lond. Yeo. (T.F.); Lce.-Corpl. Victor John Grey Crothers, from 9th R.W. Surrey R.; Gunner Henry Forsyth Paton, from Canadian F.A.; Gunner Norman Cook McClelland, from Canadian F.A.; Gunner Robert James Warner, from Canadian F.A.; Driver Hugh Hamilton McIntosh, from Canadian F.A.; Pte. Edward Percy Charles, from Canadian Exp. Force; Pte. Eric Steadman, from Inns of Court O.T.C.; Pte. Percival Leigh, from Inns of Court O.T.C.

Supplementary to Regular Corps.—To be Second Lieutenants (on probation); May 23rd, 1916: Arthur L. Jurd, Harry A. Browne, Henry F. Blake. George Purvis-Russell-Balfour-Kinnear; May 29th, 1916. June 17th, 1916: Norman H. Colson, Thomas B. W. Spencer, Gilbert Barrett, Charles A. Mader, Charles F. Ring, Douglas J. Bell, Norman B. Lovemore, Noel Goodwin, Frederick Williams, John D. V. Holmes.

The following appeared in a supplement to the *London Gazette* issued on the 28th ult. :—

Flying Officers.—June 3rd, 1916: Temporary Lieut. J. M. M'Alery, General List, from a Flying Officer (Observer). Second Lieut. J. H. Kelly, Special Reserve. Temporary Second Lieut. B. E. Berrington, E. Kent R., and to be transferred to the General List; June 4th, 1916. Temporary Lieut. T. F. Hazell, R. Innis. Fus., and to be transferred to the General List, June 5th, 1916. June 6th, 1916: Second Lieut. C. J. Campbell, Special Reserve; Second Lieut. C. V. Hewson, Special Reserve. Second Lieut. C. H. Tayler, Ind. Army Reserve of Officers, from a Flying Officer (Observer); June 8th, 1916.

Assistant Equipment Officers.—Second Lieut. D. B. Sanders, Special Reserve; April 11th, 1916. Second Lieut. L. B. Aylen, Special Reserve; June 12th, 1916. Temporary Second Lieut. J. Kirsop, General List; June 15th, 1916.

Memoranda.—Acting Sergt.-Major William H. Bowkar to be Second Lieut. for duty with the R.F.C.; June 14th, 1916.

To be Temporary Second Lieutenants: First Class Air Mechanic John H. B. Burgess, from R.F.C., for duty with the Military Wing of that Corps, June 10th, 1916; Cadet Louis B. Solomon, from First Officer Cadet Batt., for duty with the R.F.C.; June 17th, 1916.

Supplementary to Regular Corps.—Second Lieutenants (on probation) confirmed in their rank: H. Rigby, R. N. Rowell, J. H. Kelly, C. J. Campbell, C. V. Hewson, D. B. Sanders, and L. B. Aylen. To be Second Lieutenants (on probation): John L. Luntley; May 24th, 1916. Claud D. Higgins; June 17th, 1916. Second Lieut. (on probation) James C. Burney-Cumming relinquishes his commission; June 20th, 1916.

The following appeared in a supplement to the *London Gazette* issued on the 29th ult. :—

Flight-Commander.—Lieut. J. J. Hammond, Special Reserve, from a Flying Officer, and to be Temporary Captain whilst so employed; June 13th, 1916.

Flying Officers.—Lieut. E. H. Grant, Arg. and Suth'd Highrs., from a Flying Officer (Observer); May 8th, 1916. May 23rd, 1916: Temporary Lieut. W. H. S. Garnett, General List; Temporary Second Lieut. R. H. Sievwright, R. Innis. Fus., and to be transferred to the General List; Temporary Lieut. H. T. Tizard, General List, from an Assistant Equipment Officer. May 31st, 1916: Second Lieut. B. P. G. Beanlands, Hamps. R., and to be seconded; Temp. Second Lieut. H. T. Shaw, N. Lan. R., and to be transferred to the General List; Second Lieut. W. A. Porkess, Notts. Yeo. (T.F.); Second Lieut. (on probation) J. H. Parry, E. Kent R. (Special Reserve), and to be seconded; Temporary Second Lieut. O. J. F. Scholte, Bedf. R., and to be transferred to the General List; June 5th, 1916. Second Lieut. A. Hunter, W. Rid. R., and to remain seconded; June 8th, 1916. June 9th, 1916: Temporary Capt. H. G. Kaye, Yorks. L.I., and to be transferred to the General List; Temporary Capt. R. N. Thomas, R. W. Fus., and to be transferred to the General List; Second Lieut. G. Philippi, 1st Dns. (Special Reserve); Second Lieut. T. Q. Studd, Devon R. (Special Reserve), and to be seconded; Temporary Second Lieut. S. O. Barsdale, A.S.C., and to be transferred to the General List; Second Lieut. H. Spanner, Special Reserve. June 10th, 1916: Maj. M. A. Black, 5th D.G.; Second Lieut. (Temporary Lieut.) C. J. Orde, A.S.C. (Special Reserve), from a Flying Officer (Observer); Temporary Second Lieut. H. Jackson, R. War. R., and to be transferred to the General List; Temporary Second Lieut. F. B. Sedgwick, Suff. R., and to be transferred to the General List; Second Lieut. G. Wiglesworth, Special Reserve; Second Lieut. N. C. Buckton, E. Lan. R., and to be seconded; Second Lieut. R. Holloway, Special Reserve; Second Lieut. S. W. Mann, Special Reserve; Temporary Second Lieut. B. M. Wainwright, General List.

Balloon Officers.—Capt. J. R. W. Grove, R. Dub. Fus., and to be seconded; May 8th, 1916. June 10th, 1916: Capt. F. X. Russell, R. Muns. Fus., and to be seconded; Capt. P. G. Barton, R. Fus., and to be seconded; Lieut. F. G. Stammers, R. Suss. R., and to be seconded; Temporary Second Lieut. P. Worthington, Midd'x. R., and to be transferred to the General List; Second Lieut. A. H. St. Clair, Arg. and Suth'd Highrs., and to be seconded; Temporary Second Lieut. O. L. Owen, R.A., and to be transferred to the General List; Second Lieut. (on probation), L. O'G. Whitfield, Manch. R., Special Reserve, and to be seconded. June 13th, 1916: Temporary Second Lieut. N. McN. Beaton, General List; Second Lieut. W. M. Bevan, Special Reserve; Second Lieut. F. L. W., Viscount Combermere, Special Reserve; Second Lieut. G. Gilling, Special Reserve; Second Lieut. J. H. Inskip, Special Reserve; Second Lieut. H. F. Wright, Special Reserve; Temporary Second Lieut. H. E. Goody, General List; June 14th, 1916.

Assistant Equipment Officers.—The appointment of Second Lieutenant (on probation), J. M. Furnival, Special Reserve, is ante-dated to January 7th, 1916. June 15th, 1916: Second Lieut. H. B. FitzHerbert, Special Reserve; Temporary Second Lieut. B. F. Wood, General List; Temporary Second Lieut. J. K. Mountain, General List; Second Lieut. (on probation) A. J. M. Ross, Special Reserve.

Memoranda.—To be Temporary Second Lieutenants: Second Class Air-Mechanic Valentine St. B. Collins, from R.F.C., for duty with the Military Wing of that Corps; June 10th, 1916. First Class Air-Mechanic Nelson K. Johnson, from R.F.C., for duty with the Military Wing of that Corps; June 12th, 1916.

Supplementary to Regular Corps.—C. G. Davidson, from Lieutenant, General List, Canada, to be Captain; June 8th, 1916.

Second Lieutenants (on probation) confirmed in their rank: G. Wiglesworth, H. Spanner, R. Holloway, V. W. B. Castle, H. B. FitzHerbert.

To be Second Lieutenants (on probation); May 15th, 1916: Philip H. Smith, Murton A. Seymour.

The following appeared in a supplement to the *London Gazette* issued on the 1st inst. :—

Flight-Commander.—Capt. P. G. Barton, R. Fus., from a Balloon Officer; June 21st, 1916.

Flying Officers.—Temporary Second Lieut. S. W. Woodley, A.S.C., and to be transferred to the General List; June 1st, 1916. Second Lieut. I. M. Rodney, Dorset R., and to be seconded; June 6th, 1916. Lieut. J. A. G. de Courcy, R.A., from a Flying Officer (Observer); Lieut. H. E. Haslehurst, L'pool R., and to be seconded; Second Lieut. K. B. Lloyd, R. W. Fus., from a Flying Officer (Observer); Temporary Second Lieut. S. M. Wood, K.R. Rif. C., and to be transferred to the General List; Second Lieut. V. W. B. Castle, Special Reserve; June 10th, 1916. Second Lieut. C. Geen, Lond. R. (T.F.); June 12th, 1916. Capt. A. W. Tedder, Dorset. R., and to be seconded; Lieut. H. E. Hartney, Canadian General List; Temporary Second Lieut. P. R. Pinsent, General List; June 13th, 1916. Capt. (Temporary Major) A. C. Bolton, R. Sco. Fus., to be seconded, and to relinquish his temporary rank; June 15th, 1916.

Flying Officer (Observer).—Temporary Second Lieut. W. G. Clifford, General List; May 30th, 1916.

Memoranda.—N.C.Os. from R.F.C., to be Second Lieutenants for duty with R.F.C., Aug. 29th, 1915: Sergts. Edward L. Taylor and William W. Hart.

To be Temporary Second Lieutenant: Sergt. Stanley S. Halse, from R.F.C., for duty with the Military Wing of that Corps; June 13th, 1916.

Supplementary to Regular Corps.—The appointment of the under-mentioned to be Second Lieutenants, notified in the *Gazette* of Sept. 13th, 1915, is cancelled: E. Taylor and W. Hart.

Second Lieutenant (on probation) A. N. Appleford is confirmed in his rank.

To be Second Lieutenants (on probation): Gavin Ralston; May 22nd, 1916. Richard G. Booth; June 12th, 1916. Clement H. Drabble; June 13th, 1916.

The following appeared in a supplement to the *London Gazette* issued on July 3rd :—

Flight-Commanders, from Flying Officers.—Capt. C. R. Tidswell, First Dns., June 10th, 1916; Capt. W. A. S. Rough, Bedf. R., Special Reserve, June 15th, 1916; Second Lieut. (Temporary Lieut.) F. D. Lord Doune, Sco. Horse Yeo. (T.F.), and to be Temporary Captain whilst so employed, June 16th, 1916.

Equipment Officer.—The date of the appointment of Temporary Capt. C. W. Wilcox, Special Reserve, is June 21st, 1916, and not as in the *Gazette* of June 27th, 1916.

Flying Officers.—Second Lieut. (Temporary Lieut.) G. N. Martin, Durh. L.I., Special Reserve, and to be seconded; June 10th, 1916. Second Lieut. D. C. Miller, Unattached List (T.F.), and to be transferred to the General List; and Second Lieut. J. Gilmour, Arg. and Suth'd Highrs., and to be seconded; June 12th, 1916. Temporary Lieut. S. S. Halse, General List; June 13th, 1916.

Second Lieut. G. C. Husband, Special Reserve, and Second Lieut. A. J. Mayo, Special Reserve; June 15th, 1916.

Assistant Equipment Officers.—Second Lieut. C. G. Jones, Special Reserve, from a Balloon Officer; June 5th, 1916. Second Lieut. F. A. Corbett, Special Reserve; June 9th, 1916. Second Lieut. D. Drover, Special Reserve; June 10th, 1916. Second Lieut. C. H. Collins, Special Reserve; June 16th, 1916. Temporary Second Lieut. G. F. Drudge, General List; June 17th, 1916. Second Lieut. (on probation) G. Purvis-Russell-Balfour-Kinnear, Special Reserve; June 21st, 1916.

Memoranda.—N.C.Os. and men to be Temporary Second Lieutenants for duty with the R.F.C.: Pte. James Clinkskill, from A.S.C.; May 28th, 1916. Lce.-Corpl. Edgar J. Phelps, from R. War. R., and Pte. F. J. W. Humphreys, from Sea. Highrs. (T.F.); May 29th, 1916. Corpl. George C. Twining, from A.S.C.; May 30th, 1916. Pte. J. S. Williams, from Canadian A.S.C.; May 31st, 1916. Sergt. J. M. R. Langley, from 19th Alberta Dragoons; June 2nd, 1916. Sergt. Lewis C. Chapman, from R.E. (T.F.); June 3rd, 1916. Sergt. H. V. Jerrard, from R.F.C.; June 4th, 1916. Flight-Sergt. William B. Everton, from R.F.C.; Flight-Sergt. Alfred S. Morris, from R.F.C.; 2nd Class Air-Mechanic Charles I. Sandys-Thomas, R.F.C.; June 12th, 1916. Pte. Francis E. Glass, from A.S.C.; June 11th, 1916. 1st Class Air-Mechanic Hamilton E. Hervey, from R.F.C.; June 14th, 1916.

Supplementary to Regular Corps.—To be Captains; June 1st, 1916: Lieuts. (Temporary Capts.) H. R. Nicholl, T. E. Robertson, S. A. Hebden. Lieuts. J. P. Inglefield, H. T. Musker, R. B. Bourdillon, I. O. Griffith.

Second Lieutenants (on probation) confirmed in their rank: G. C. Husband, A. J. Mayo, D. Drover, G. P. Achurch, C. H. Collins.

Air Work in East Africa.

INCLUDED in the list of names mentioned in the despatch, dated May 8th, 1916, of Lieut.-Gen. J. C. Smuts, for gallant and distinguished service in East Africa, are the following. The despatch is supplementary to that dealing with events in East Africa up to March 21st, extracts from which were given in our issue of June 22nd:—

William Riagrose Gelston Atkins to be Second Lieutenant; June 19th, 1916.

Frank C. Craig to be Second Lieutenant (on probation); June 17th, 1916.

Central Flying School.

The following appeared in the *London Gazette* of the 27th ult.:—

Assistant Commandant (graded as Wing-Commander).—Capt. (Temporary Major) G. E. Todd, Welsh R., a Squadron-Commander, and to be Temporary Lieutenant-Colonel whilst so employed, vice Lieut. (Temporary Major) E. L. Conran, 21st Lrs.; May 21st, 1916.

Instructors.—April 1st, 1916: Lieut. (Temporary Capt.) E. O. Grenfell, R.A., a Flight-Commander; Lieut. (Temporary Capt.) G. D. Hill, 7th Hrs., a Flight-Commander; Second Lieut. (Temporary Capt.) L. A. Tilney, Duke of Lanc. Own Yeo. (T.F.), a Flight Commander, from Officer in Charge of Experimental Flight; April 15th, 1916.

Officer in Charge of Experimental Flight (graded as Squadron-Commander).—Second Lieut. (temp. Capt.) L. A. Tilney, Duke of Lanc. Own Yeo. (T.F.), a Flight-Commander, vice Lieut. (Temporary Capt.) G. L. Cruikshank, D.S.O., Gord. Highrs.; March 17th, 1916.

Officer in Charge of Experimental (now Test) Flight (graded as Squadron-Commander).—Capt. (Temporary Major) J. E. Tennant, S. Gds., a Squadron-Commander, vice Second Lieut. (Temporary Capt.) L. A. Tilney, Duke of Lanc. Own Yeo. (T.F.); April 15th, 1916.

Royal Flying Corps.

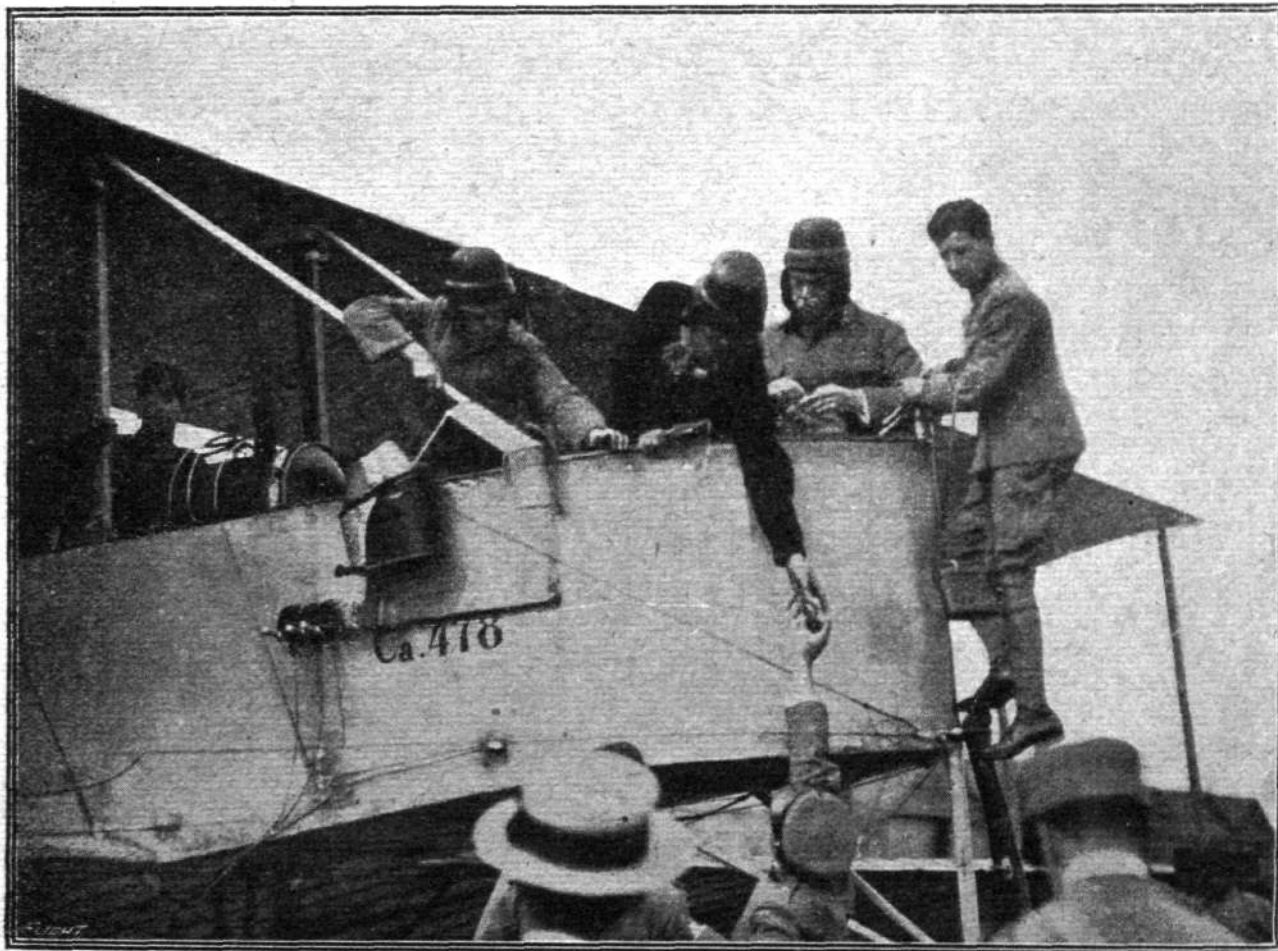
Temporary Captain G. S. CREED.

Temporary Lieutenant E. C. EMMETT.

Temporary Lieutenant E. R. M. GRIFFIN.

Second Lieutenant W. D. M. BELL, Special Reserve.

Second Lieutenant F. W. BRETT, Special Reserve.



THE WAR IN THE ITALIAN SECTION.—General Cadorna (the second from the right), who has made several flights since Italy came into the war, in one of our Ally's aeroplanes which has just returned from a raid over the Austrian lines.

THE FLYING SERVICES FUND—ADMINISTERED BY THE ROYAL AERO CLUB.

THE Flying Services Fund has been instituted by the Royal Aero Club for the benefit of officers and men of the Royal Naval Air Service and the Royal Flying Corps who are incapacitated on active service, and for the widows and dependants of those who are killed.

The Fund is intended for the benefit of all ranks, but especially for petty officers, non-commissioned officers, and men.

Forms of application for assistance can be obtained from the Royal Aero Club, 166, Piccadilly, London, W.

Subscriptions.		£	s.	d.
Total subscriptions received to June 27th, 1916	10,739	10	8	
Collected at the Westland Aircraft Works, Yeovil (Thirty-eighth contribution)...		0	19	9
Staff and Workers of Gwynnes, Ltd. (Eighteenth Contribution) ...		8	8	11
Subscribed by the Gerrard Post Office Telephone Staff ...		1	1	0
Total, July 4th, 1916	10,750	0	4	

B. STEVENSON, Assistant Secretary.

166, Piccadilly, W.

THE ROLL OF HONOUR.

THE Secretary of the Admiralty announces the following casualties:—

Died of Injuries (June 29th).

Flight-Lieutenant Geoffrey R. H. Talbot, R.N.

Injured (June 15th).

Flight Sub-Lieutenant Cecil H. Fitzherbert, R.N.

(June 28th.)

Flight-Commander Thomas A. Rainey, R.N.

(July 2nd.)

Flight Sub-Lieutenant Alfred M. Hughes, R.N.

The following casualties have been officially announced by the War Office:—

Killed.

Second Lieutenant C. R. Bertram, Cavalry, Special Reserve, and R.F.C.

Captain H. A. Cooper, Royal Flying Corps.

Second Lieutenant S. G. Ridley, Royal Flying Corps.

Captain L. H. Sweet, Hampshire Regt. and R.F.C.

Died of Wounds.

Lieutenant E. H. Bird, R. Fusiliers, attached R.F.C.

7367 2nd Class Air-Mechanic F. H. F. Brand, Royal Flying Corps.

Previously Officially reported Missing, now Unofficially reported Killed.

Second Lieutenant J. R. B. Savage, Royal Flying Corps.

Died.

7789 1st Class Air-Mechanic A. J. Dell, Royal Flying Corps.

5549 2nd Class Air-Mechanic S. W. E. Dewhurst, R.F.C.

Wounded.

Second Lieutenant L. C. Angstrom, Royal Flying Corps.

Second Lieutenant J. A. Coats, Royal Flying Corps.

Second Lieutenant G. R. McCubbin, Royal Flying Corps.

Lieutenant R. C. B. Riley, Yeomanry, attached R.F.C.

Second Lieutenant S. P. Simpson, Bedford Regt. and R.F.C.

Missing.

Second Lieutenant J. L. P. Armstrong, A.S.C. and R.F.C.

Lieutenant J. R. Dennistoun, Cavalry, S.R., attached R.F.C.

Lieutenant H. B. Russell, R.F.A. and R.F.C.

Prisoners of War.

Captain D. L. Grant, London Regt.

Lieutenant S. C. T. Littlewood, L. N. Lancs. Regt. and R.F.C.

Previously Officially reported Missing, now

Unofficially reported Prisoners of War.

Captain R. J. Tipton, R.F.A., attached R.F.C.

4473 Sergeant T. N. Palmer, Royal Flying Corps.

3318 2nd Class Air-Mechanic W. C. Pass, Royal Flying Corps.



London Aerodrome, Collindale Avenue, Hendon.

Grahame-White School.—Straights with instructor last week: Messrs. Alty, Callard, Cockelle, Edwards, Hodgkinson, Jamie, Key, Keymer, Lyles, Mills, Mulville, Rodocanachi and Ward. Circuits with instructor: Messrs. Donald and Goodhart. Eights with instructor: Messrs. Cooper, Forster, Phillips, Turner and Welinkar.

Instructors: Messrs. Biard, Hale, Manton, Pashley, Russell, and Winter. *Brevet Test C*: Mr. Rabourdin.

Beatty School.—The following pupils were out during last week: Messrs. Kay, Gliksten, Atkin, Venables, Murdoch, Roberts, Davy, Jones, Hoskins, Earl, Skeet, Garlick, McPherson, New, Towson, Elliott, Clift, White, Austen, Rudd, Curry, Owen and Sach.

The instructors were Messrs. G. W. Beatty, G. Virgilio, A. E. Mitchell and H. Fawcett, the machines in use being Beatty-Wright dual-control and single-seater propeller biplanes and Caudron dual-control and single-seater tractor biplanes.

Hall School.—Last week pupils with P. G. Allen: Messrs. Barton, Orton, Henley and Illingworth, all showing improvement. With Chas. Bell: Messrs. Cosgrave, Armitage, Smith, Halliday and Glegg, all showing exceptional progress. With C. M. Hill: Messrs. Dickson, Skinner, Jones, Deane, Le Grice, Duncan, and Wors-

wick. Machines: Hall and Caudron (Government type) tractors.

Royal Aero Club certificates taken by Messrs. Dickson, Cosgrave, F. Smith, and Armitage, each making splendid exhibition flights.

London and Provincial Aviation Co.—Pupils rolling last week: Messrs. Mander, Bush and Leman. Doing straights: Messrs. Sivewright, Jones, Daly, Evernden and Egerton. Circuits and eights: Messrs. Whittingham and Dawson. Instructors: Messrs. W. T. Warren, M. G. Smiles, L. H. Brake, and W. T. Warren, jun.

Royal Aero Club certificates were taken by Messrs. H. J. Whittingham and A. Dawson.

Ruffy-Baumann School.—Pupils receiving instruction last week: Messrs. Babington Smith, Trubridge, Carr, Fanshawe, Durand, Williams, Fraser, Beebee, Westlake, Thomas and Holmes. Instructors: Edouard Baumann, Felix Ruffy, Ami Baumann and André Thomsen. Machines, 60 and 50 h.p. Ruffy-Baumann biplanes.

Several pupils are now ready for their certificates, and will pass the necessary tests as soon as the weather moderates.

Bournemouth School.

PUPILS rolling alone last week: Messrs. Fenn, Montgomery, Ross, J. B. Smith, Wingfield, Little,

Hinchcliff, Turner, Brandon, Green, Pritt, and Hammersley. Doing straights alone: Messrs. O. Wilson, H. Smith, Barlow, Daniel and Scaramanga. Half-circuits alone: Mr. J. Wilson. Instructors: Messrs. S. Summerfield and Bryneldsen; 35, 45, and 60 h.p. Caudrons in use.

Owing to the boisterous weather during the week flying was very difficult, but nevertheless quite a lot of pupils received tuition.

For the week ending June 18th it was omitted to state that certificate was taken by Mr. Morris.



Copyright, F. N. Birkett, from the F.N.B. Series.

A Group of Pupils who have secured their Certificates recently at the Beatty School of Flying, Hendon.—(1) Mr. J. Tjaarda, (2) Mr. A. B. Drewery, (3) Mr. C. F. Brewerton, (4) Mr. B. Gaskin, (5) Mr. R. H. Edwards, (6) Mr. G. F. Barrow, (7) Mr. R. L. D. Cuthbert, (8) Mr. R. W. Stanley, (9) Mr. G. A. Thompson, (10) Mr. M. G. Mossop, (11) Capt. H. W. G. Jones, (12) Mr. J. M. Drysdale, (13) Mr. J. d'Allesina, (14) Mr. H. L. Smith, (15) Mr. H. W. Sellars.

AN IMPROVED HANGAR DOOR.

ANYONE who has had to do with the opening or closing of the average hangar door will readily admit that there is room for considerable improvement in the arrangements at present in vogue, not only as regards the energy required for the operation of so

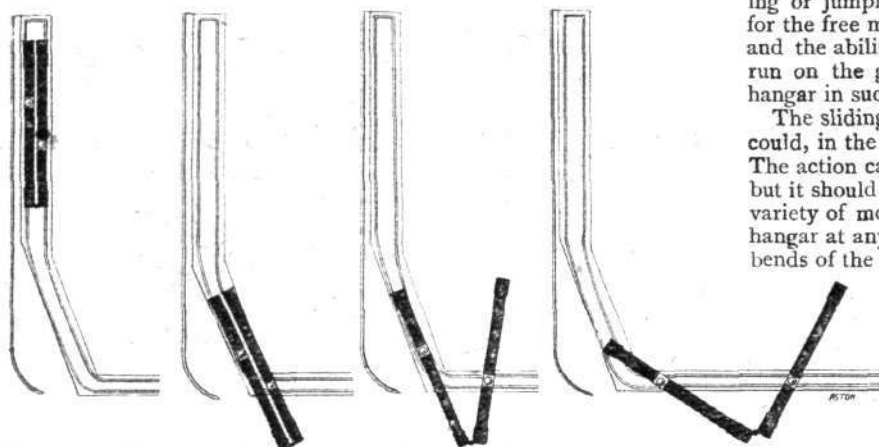


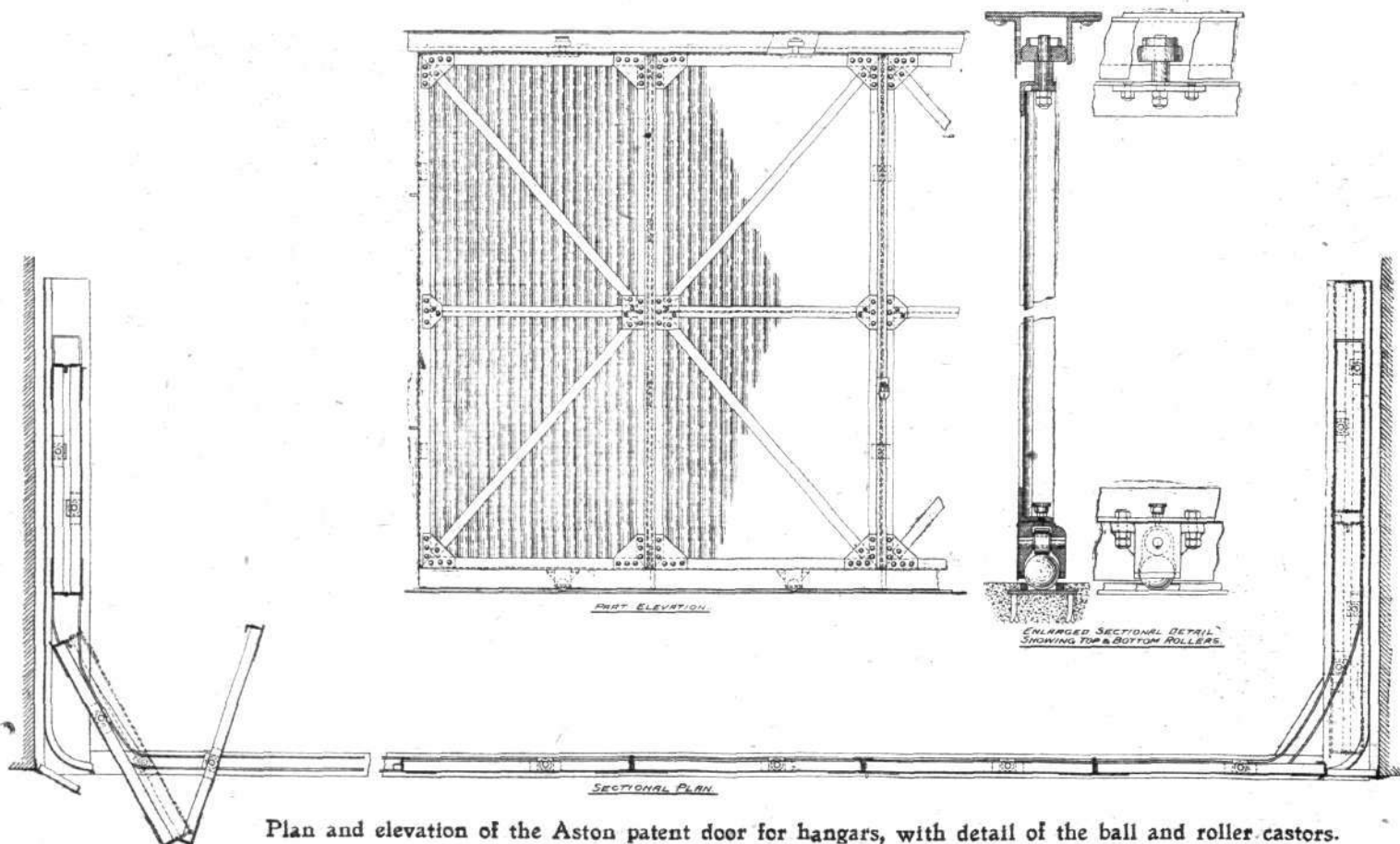
Diagram showing the positions taken by the door-sections during opening and closing of the Aston hangar door.

doing, but in the space occupied by the doors when open and during the process of opening and closing. An improved system of hangar doors that has just been evolved by the Aston Construction Co., Ltd., of Eagle Wharf Road, London, N., should, therefore,

bottom and a pair of rollers at the top, enabling the door to travel between the guide rails with the greatest of ease. This—in itself a great improvement on the ordinary sliding door fitted with plain castors, which is constantly giving trouble through the latter jamming or jumping the guide rails—is not, however, the only feature, for the free movement in any direction afforded by the ball castors and the ability of the door sections to fold, allow each section to be run on the guide rails out of the way alongside the walls of the hangar in such a manner that they occupy but very little space.

The sliding of the door sections, moreover, is quite easy, and could, in the case of a moderate sized hangar, be done by one man. The action can be followed readily by referring to the illustrations, but it should be mentioned that although the door sections give a variety of movements, thereby providing a partial opening of the hangar at any section, an arrangement of stops and guards at the bends of the guide rail renders the sliding and folding back of the door sections into position alongside the walls of the hangar absolutely self-acting. The ball castor is shown in detail on the large drawing of the door, from which it will be seen that it is quite accessible and that it is fitted with a lubricator. Provision is also made for lubricating the top rollers. It should be noted that the ball castors and the top rollers are placed out of centre, so that the door remains stable when folded.

The number of door sections depends, of course, upon the size of the hangar, and as regards the construction we are informed that this entails no extra complication as compared with ordinary sliding doors. It could also be adapted to existing hangars with advantage. Another feature of the Aston door is that when closed it is quite weather proof, there being



Plan and elevation of the Aston patent door for hangars, with detail of the ball and roller castors.

find a ready welcome. This system, the general arrangement of which is shown in the accompanying illustrations, has the advantages of extreme ease of operation, compactness, and reliability. In the Aston system the door is made up of a number of sections, each one folding in half and fitted with a pair of ball castors at the

only a very small crack top and bottom, and this is screened by a plate running the full length of the door.

The Aston Construction Co. will be pleased to give full particulars and advice in connection with the fitting of these doors on application.

Air Raid Warning for Theatre Audiences.

ARRANGEMENTS have now been made for warnings of threatened air raids to be communicated to audiences at theatres and music halls in the London suburbs. As far as possible the warning will

be given about twenty minutes before any actual attack can take place, and those who decide to leave are warned that if bombardment or gun-fire commences before they reach home they should at once take cover.

THE R.F.C. INQUIRY.

MR. PEMBERTON BILLING continued his evidence at the meeting of the Committee on June 27th.

At the commencement of the sitting Mr. Butcher asked Mr. Pemberton Billing if he was sure that the father of a killed pilot was alive on a certain date, the witness replying: "Do you think I am corresponding with the dead?"

Mr. Billing, reading from the statement by the squadron-commanders of the R.F.C. which he referred to on the previous day, repeated that the performance of the Royal Aircraft Factory's B.E. 2 C was beaten by the Germans even before the war, and now by most of the private makers in this country. He complained that he had received a letter from the Director of Air Services denying him the privilege, which was extended to many people, of visiting the aerodromes, or of having anything to do with the Royal Flying Corps. This greatly handicapped him in arriving at any decision regarding them.

Mr. Balfour Browne pointed out that the report added nothing to the weight of Mr. Billing's opinion, because the facts on which it was based were not before them.

Mr. Billing agreed, but hoped by some method the officers who had made the statement would be able to give evidence. At a meeting of manufacturers it had been decided by a majority not to appear, as they feared the consequences of such an act. Mr. Billing proceeded to read a letter from one manufacturer, but the Chairman ruled it out of order. He added: Just let me make a statement on that here and now. I can understand and sympathise with the reluctance of men or officers in the R.F.C., but so far as manufacturers are concerned it is quite different. Please accept that as final.

Mr. Billing: I am entirely in accord. I am disgusted with some of them in not taking this opportunity of placing their views before the Committee.

Dealing with the Aircraft Inspection Department, Mr. Billing produced a report by a late member of that department who was prepared to appear before the Committee. Inspectors totally without experience were engaged for their responsible posts haphazard. The pay was 35s. per week for viewers and £2 10s. for inspectors; such salaries were not likely to encourage highly-qualified men. They were employed in a purely civilian capacity and wore no uniform. Rather than employ incompetent inspectors it would be better to have no inspectors at all and put the whole onus on the constructors. The moral responsibility was to a certain extent lifted by the presence of the inspectors.

The Chairman: The inspection by Government inspectors does not remove the burden in the least degree. Contractors must fulfil their contracts. If that was the feeling in the trade, it was entirely unjustified.

Mr. Billing: My point is that a great deal of the inefficiency of machines of Government design arises from the men who designed them not having practical experience in aviation.

The Chairman: Do you suggest that there have been more faulty designs by the Royal Aircraft Factory than by private constructors?

Mr. Billing: Undoubtedly; in my opinion, yes.

The Chairman: Have you any data on which you base that opinion?

Mr. Billing repeated instances already mentioned of accidents to factory machines.

Sir Charles Parsons denied the accuracy of a statement by Mr. Billing that it was possible to design a machine, provided a designer understood his job, which "would get into any position and get out of any position in the air without collapsing."

Mr. Billing said he could prove his assertion, and instanced the case of Germans who were constantly bringing down machines by the flattening-out process and firing upwards.

Sir Charles Parsons said there was a limit to everything.

Mr. Billing said he could show Sir Charles Parsons a machine which had done some alarming things without crumpling up—flattening out in a nose dive, falling with a 110 h.p. engine going at an enormous rate, and suddenly going in a certain direction.

Sir Charles Parsons disputed the contention that it was possible to design such a perfect and reliable machine as described, but Mr. Billing said he should like to prove his point.

General Smith-Dorrien pointed out that the failures of Factory machines occurred two years ago, and that a good deal of Mr. Billing's evidence was based on his own imagination.—Mr. Billing replied that a good deal of his evidence was based on his knowledge and experience. He complained that the Committee kept him there all day, and did not give him time to get the details.

The Chairman: No. You intimated that you were willing to come before the Committee, and were given a considerable time to marshal your evidence.

Mr. Billing: You must understand I am prepared to devote

nearly all my life to this work. I have other calls on my time and other duties to perform, and it is as an act of grace that I am trying to assist in the reorganisation of the Air Service. I came before this Committee very reluctantly, and I would have preferred to have appeared before a committee absolutely versed in aviation and not before those who are taking it up specially for this inquiry.

Mr. Balfour Browne: Never mind the reluctance. You are now here; you have made certain statements, and we want to find the grounds. That can only be done by evidence.

Sir Charles Parsons: We want some of the general accusations justified.

General Sir H. Smith-Dorrien: These hypothetical cases are no good to us. The greater part of your time seems to be taken up in going into long dissertations of no good.

Mr. Pemberton Billing: I should not be obliged to do it if members of the Committee had any experience in aviation.

General Smith-Dorrien: I think you think that we know much less than we do.

The Chairman pointed out that he was perfectly familiar, after 30 years of experience, with inspection in engineering works.

Sir C. Parsons: I have all my life been doing Government work, and to make a general charge against inspectors without evidence is most unjust.

Mr. Pemberton Billing: A man who was a grocer's assistant yesterday might be an inspector to-morrow.

Mr. Butcher: Have you any case of a grocer's assistant? If not, it is not a fair illustration.

Mr. Pemberton Billing: I think it is rather a good illustration. I have a report here. (Handing a paper to the Chairman.) I think the writer will come, but in case he does not I must read this document. Witnesses don't like the prospect of being called. This is taken as a kind of inquisitorial inquiry.

Mr. Balfour Browne: I protest against these remarks. You have made certain grave charges, and you have been asked to prove them. I object to all these letters and reports without witnesses.

Mr. Pemberton Billing: Shall I have the same privilege as General Henderson, and be allowed to sit at a table and examine my witnesses?

The Chairman: Certainly, you can.

The Chairman: The charge of misappropriation of public money by the falsification of time-sheets which is made in the letter you have read must be proved.

Mr. Billing: I will give you the name and address of the writer.

A gentleman here rose from among the public, and said that he was the writer and was prepared to give evidence.

This gentleman, Mr. R. F. Curtis, was called forward by the Chairman, and took Mr. Billing's place at the witness table. He said he had been an engineer, and had spent two months at Hendon as examiner in the Aircraft Inspection Department at the Aircraft Manufacturing Company's works. Talk and killing time was the work of many of the inspectors, of whom there were 20 or 25. He was paid 50s. a week, and assistants were paid 35s. a week, with overtime. He declared that work was only done by those who cared to do it, and that anything from five to thirty degrees of inaccuracy in the machines was not rectified. He tried to alter this by referring it to the examiner in charge, but was told that it was not worth bothering about because the type was becoming obsolete.

Mr. Billing: Were the machines being finished to be destroyed or to be flown?

Mr. Curtis: They were for school purposes.

Mr. Billing was pointing out that the pilot's life was as valuable in the one case as in the other, when the Chairman remarked: "Do not tell us that two and two make four every time."

Witness went on to state that they were practically expected to falsify the time-sheets in order to get overtime money. He refused to sign for hours he had not worked. The examiner in charge, by whom the papers had to be signed, said to him: "Why have you not signed your time-sheet the same as the others?" and witness replied: "I do not quite see my way to sign for hours I have not worked." Then the examiner said: "Don't you see you are letting all the other chaps down?"

In reply to Sir David Henderson, Mr. Curtis said he had not made any report on the question of falsifying time-sheets to any person in authority, but he had sent a draft copy of his statement to Colonel Bagnall-Wild, of the Aircraft Inspection Department.

In the afternoon Mr. Billing gave technical evidence in private.

On the following morning, continuing his evidence, Mr. Billing began by saying that he wished to call attention to the circumstance that on Tuesday when he alluded to the fact that one of our new machines, F.E. 2 D., had been delivered directly into the German lines as the result of the incompetence or inexperience of the pilot, General Henderson stated that the pilot had been shot down, and

consequently he refrained from any comment. But Lord Montagu of Beaulieu stated in the House of Lords on Tuesday that the pilot and observer had landed behind the German lines quite intact, and he would like to know whether General Henderson adhered to his statement that this machine was shot down.

General Henderson replied that his protest was made against the innuendo in regard to the good faith of the pilot. The machine was brought down by anti-aircraft gunfire, and he would bring evidence on the subject.

Mr. Balfour Browne: Did you notice that Lord Curzon stated that similar mistakes have been made by the Germans?—Yes, but that is a most regrettable defence. We ought to be doing better than our enemies.

Mr. Balfour Browne pointed out that the approaches to the German and British aerodromes were very much alike.

The Chairman: In the case of a pilot who is capable of flying a machine, but who has not been to the country before, is that a mistake a fairly experienced pilot might be expected to make?—I should say it was a mistake he ought not to make, because he was flying with maps and in the day time. It is not so much the pilot as the observer. It is the observer's job to keep a bright lookout, and if the observer had been competent the affair would not have happened. I understand that the observer had only been in the Flying Corps nine days.

Mr. Billing went on to say that some time ago the military authorities approached the Admiralty in order to borrow pilots, and when they heard they were to fly B.E. 2 C.'s the pilots refused to go, but volunteered to go with their own types. The Admiralty had quite a number of B.E. 2 C.'s and would put no difficulty in the way of the Army taking them back again. One of the naval pilots told him that, if he were starting on a bomb raid or reconnaissance over the enemy's lines, and were given a choice of machine, he would select the Sopwith "1½ strutter," with Le Rhône engine, as giving him the greatest confidence, and that he would have less confidence in the R.A.F. engines than in any other.

The witness here intimated that that concluded his evidence subject to his being able to call witnesses. He had received letters from a number of people offering to give evidence, but before he called them he was going to see them, as he had got many communications from cranks. He would like to add, however, that the changes that had taken place in the administration and command of the R.F.C. in the last few months had been, in the words of men in the Service, almost miraculous. Firms that had previously complained were now satisfied, while men who had deemed it their duty to come forward and give evidence now considered that step unnecessary. Whether critics or criticised suffered or not as the result of this investigation, he at any rate was perfectly satisfied that the outcome would be of permanent advantage to the Service and to the science to which he had devoted many years, and to which he hoped to return.

The Chairman: The most serious charge you bring is that the public air service of the Royal Flying Corps has been so blinded by faith in its own production that the air service has been mis-managed?

Mr. Billing agreed.

The Chairman: Have you any evidence on that point?—Yes, I think I shall be able to call two witnesses. Some witnesses were to attend, but their courage has failed them.

Mr. Billing was then cross-examined by Sir David Henderson, who first asked if the facts and figures quoted at the inquiry were those to which Mr. Billing referred on March 22nd in the House of Commons.

Mr. Billing replied: "Some of them," adding that the facts and figures were offered to Mr. Tennant or others on the Treasury Bench, for them to investigate, purely from their position in the House. The evidence he had offered consisted of dates, the names of the machines, the places of death, and the generally accepted cause of death amongst members of the Flying Corps. Beyond that he could not go.

Sir D. Henderson: These are the facts upon which you have based your charge of murder?—The evidence upon which I said there had been negligence tantamount to murder.

That they had been murdered rather than killed?—I have put facts and figures before Committee to the best of my ability.

You don't answer my question. These are the facts and figures upon which you based your charge of murder?—Some of the witnesses I have been unable to call, such as service witnesses. But I don't withdraw anything from my speech so far as it relates to the military branch.

You told the House of Commons that on October 26th one of our own machines was shot down by one of our own machine guns through the stupidity of a brigadier-general. What has that to do with a charge of murder against the Flying Corps?—I don't know all the facts.

Why is that case mentioned when it has nothing to do with the

Flying Corps?—In my opinion the pilot took unnecessary risks, but if this particular case does not reflect on the command it should certainly be withdrawn. I naturally dealt with all cases which reflected discredit on general maladministration, and in preparing a list of 200 cases, it is possible that one or two isolated cases may not reflect so much on the Service, while others, were the facts fully known, might reflect even more.

Don't you know there was no brigadier-general, excepting myself, in the Royal Flying Corps at that time?—No, I didn't know.

Then why did you say so?—Well, it goes to prove that six brigadier-generals have been made in a year. But I accept the statement that this machine was shot down by our own officers.

Why?—From your remarks. I want to satisfy myself that the machine was, or was not, shot down.

Oh! We shall have evidence on that.

With regard to a statement made by Mr. Billing in the House of Commons, to the effect that there were 105 cases of missing officers who, if they had had decently engined machines, would be in this country or fighting our battles in the air to-day, Sir David Henderson asked if Mr. Billing still adhered to that statement.

Mr. Billing: Possibly one might say most of those men.

Sir David Henderson: Do you adhere to the statement or do you withdraw it?—I certainly don't withdraw it. I simply substitute the word, "most" for "all."

Sir David Henderson: I take that as a withdrawal.

Mr. Balfour Browne: You modify your statement?—Only very mildly.

Sir David Henderson: Is it not the fact that you have not much evidence, but you want us to call the evidence?—I do to a certain extent.

Mr. Billing was next questioned about a statement he had made that machines were being manufactured six months after the type had been condemned. He complained that Sir David Henderson was too fastidious about words, and said that what he (Mr. Billing) meant was that the machine had been discarded by the French; that was what he meant by condemned.

Sir D. Henderson called Mr. Billing's attention to his statement in the House that in the early stages of the war we had no machine to compete against the Fokker, and as a result our men were being shot down like rabbits.

Mr. Billing adhered to the allegation.

Sir D. Henderson: Have you any evidence of it?—No; it was a remark made to me by pilots, and I can't improve on it.

Sir David Henderson: Would you expect the casualties on the B.E. 2 C. to be heavier than on other machines?—You may have made mistakes in the purchase of other machines. On the question being repeated, the witness replied, "Oh, distinctly."

Sir David Henderson: You suggest that our superiority was at last due to machines borrowed from the French?—Yes, borrowed, or bought, or secured from the French.

Questioned as to the four groups of intrigues in the R.F.C. which Mr. Billing mentioned on Friday, he said that Sir David Henderson belonged to the first group.

This group he had described as consisting of those who had carried on a long and persistent intrigue to get control of both the air services and perpetuate the principles of the R.A.F.

On the question of calling the authors of the Squadron Commanders' statement, Sir David Henderson said he could not reasonably say that it would not influence him very seriously if he knew who they were.

Regarding his allegation that there was intrigue and jealousy between the Services, and that the officers of the R.N.A.S. were not on speaking terms with the officers of the R.F.C., Mr. Billing said that a few weeks ago he was in Paris at the British Air Headquarters. The military occupied the first floor and the naval the second floor. He asked a naval officer, who was a friend of his, to take him to the floor below to see a military officer with regard to obtaining a permit to see the sheds and flying, and the naval officer replied, "Not on your life, no."

The names of the naval and military officers in Paris were shown to Mr. Billing, who replied that the officer to whom he spoke was one of them. Mr. Billing understood that the officers were not on speaking terms.

The Chairman: Is that the evidence on which you base your charge that the naval and military representatives in Paris are not on speaking terms?—Yes; Major Courtney told me point blank he had "not time" for one of the other officers whom he mentioned. Sir D. Henderson, with the permission of the Chairman, then read the following telegram from Paris:—

"With regard to Pemberton Billing's statement *re* relations between aviation officers in Paris, we wish to state that as regards the present staff the statement is absolutely without foundation.—(Signed) Capt. Acton, R.N., Major Courtney, R.N.A.S., Capt. Lord Innes-Ker, R.F.C."

Mr. Billing: Has that been sent with spontaneity on the part of those gentlemen?

Sir D. Henderson: That is so.

Mr. Billing: Most interesting. Perhaps we shall be able to refer to that later on.

Sir D. Henderson: His objection to take you down to see Captain Innes-Ker was that you were in his company?—No, I should not think so.

Sir D. Henderson: I should have no doubt about it—Capt. Innes-Ker would only be one of hundreds who are not allowed to be seen in my presence. They have been given orders—or shall I say instructions—which they tell me came from you, that they are not to be seen speaking to me.

Sir D. Henderson: Let me understand. Do you suggest there have been orders issued?—Officers who are personal friends of mine have distinctly told me that they have been given the word, I cannot say whether it was typewritten or private notice, that if they are seen speaking to me their number is up! Do you follow?

Sir D. Henderson: I understand what you say.—That they are frightened also to appear before you here.

Sir D. Henderson: You suggest I have given an order?—I suggest that measures have been taken in the direction indicated, and that during the last two months friends of mine in the Flying Corps have shown by their conduct that they must not speak to me. I have met them in various clubs and other places, and on one occasion one said: "For God's sake don't speak to me, or my number is up."

Sir D. Henderson: I want you to be more specific. Where did they get their orders from?

Witness: Well, where do you think? It certainly did not come from someone not interested in the Flying Corps.

In further examination Sir David Henderson remarked: "When you are challenged—"

Mr. Pemberton Billing: Challenged! Anyone would think you were asking questions for the benefit of the newspapers.

Referring to Mr. Billing's speech in the House in which he asked members to picture the position of an observer whose pilot was shot, Sir David Henderson quoted the words, "He hears a gasp and a cry, turns round, and sees that the pilot is dead."

"I don't like speaking about this sort of thing," said Sir David Henderson, "but it rather shows the type of the whole speech. Does Mr. Billing know any type of machine on which an observer would be able to hear a gasp or a cry?"

Mr. Billing said the pilot might have stopped his engine or have been planing down and the whistling of the wires might have been reduced. If a man were shot through the head or lungs he would gasp fairly loudly. He had no experience of that kind, but if Sir David cared to go with him in a B.E. 2 C. he would stop the engine and gasp, and see if Sir David heard him.

Sir D. Henderson: You further said, "These cursed, groggy machines."—And I stick to it. I should curse them and I think they are groggy. Alluding to his statement that pilots had been driven into the air, he said he was in the habit of using service slang and they talked of "driving into the air." While he might alter a phrase in his speeches in the House he adhered to the sense of what he had said.

Sir D. Henderson: On the question of inefficiency, you spoke about "the blind and unreasoning faith" of the chief of the Royal Flying Corps. Have you any knowledge at all about the relations of myself and the chief of the Aircraft Factory?—Only from your subordinates.

You mean officers of the Flying Corps?—Yes.

Are they likely to have any knowledge?—I think so, because one arrives at these conclusions from results.

Sir D. Henderson closely questioned Mr. Billing as to the report he had mentioned regarding airships, which was a confidential document of the Committee of Imperial Defence, and his statement that Sir David Henderson was one of the experts who had opposed the construction of rigid airships before the war. Mr. Billing admitted he had never seen the report.

Sir D. Henderson: Then on what grounds do you make the charge?—Do you deny it?

I am cross-examining you now, not giving evidence.—I shall cross-examine you on that point later on.

The Committee will see the reports you refer to. I tell you now that the whole thing from beginning to end is purely your imagination or your own invention.—It is extraordinary that the imagination of a number of witnesses should run along the same lines.

The Chairman: We have had no evidence of that.

You have produced no witnesses.—I was speaking of what the witnesses have said who preceded me in this chair.

Sir David Henderson remarked that he had great difficulty in ascertaining what was surmise, imagination, and evidence on Mr. Billing's part.—At any rate I don't withdraw anything. The statements I have made were not reckless statements in any way.

Mr. Billing had complained that officers in command of the air service had had no active service in the air, and General Sir D. Henderson was one of those officers.

Sir David Henderson asked Mr. Billing if there were not other commanding officers who had had active service.

Mr. Billing replied that he should want their names to see whether he considered that they had had active service.

Sir D. Henderson said he had not had active service in the air, and the Committee would be given the full reasons why he had been placed at the head of the service. He complained that Mr. Billing had confused inspectors with examiners in the inspection department. An air service inspector held the rank of officer. He asked if the things which Mr. Billing had told the Committee were to be taken in any way as expert evidence. Frequently Mr. Billing made the qualification "from his knowledge," "from his experience," and "it was his opinion" of such and such a thing. Was that expert evidence?

The Chairman: I am not sorry you asked that question, because it seems to me clearly that not a single piece of the evidence Mr. Billing has given could be accepted at any trial or in any court of justice as evidence. All that it amounts to is this: he has given and made statements about information that he has gathered in the course of his inquiries into these matters, and the value, and the only value, of Mr. Billing's statement is this: He has directed our attention to various matters which he has told us are wrong, and he desires us to inquire into them. Of evidence there is practically, from first to last, no piece of evidence at all. That is how the matter stands.

Mr. Billing: I never expected, once the Royal Naval Air Service was ruled out of the scope of the inquiry, to be of any service to the Committee except as a guide and councillor to make suggestions.

Sir D. Henderson: If the Committee consider Mr. Billing's evidence is expert evidence, I should like to ask him *in camera* one or two questions.

The Chairman: I have regarded him as an expert on certain questions that I have asked him.

The inquiry was resumed on the 29th ult., when Mr. Billing was examined by Mr. Charles Bright.

Mr. Bright: Has not any shortage of aeroplanes at the front been due to a great extent to a shortage of first-class pilots available for the front?—I think that there has been a shortage of pilots, directly due to maladministration in training.

Were not high-power engines specially required when we made clear the practical uses to which aeroplanes could be turned?—They were, and those of us who were far-seeing advocated them in the very early days. The Navy was fully in favour of high-power engines, but General Henderson, representing the Army, was absolutely against them to the best of my knowledge and belief.

Sir David Henderson asked if the grotesque statements which Mr. Billing was making were part of his evidence, because, if so, he would have to call evidence to combat it.

The Chairman: Undoubtedly they are part of his evidence, and we will tell you what evidence we desire you to bring.

Mr. Bright asked witness if he would agree that our machines had not flown more times on the average than the German machines.—Well, we only have the German official report to help us as to the percentage, and I am not inclined to believe our enemy's communication always.

Mr. Bright read an extract from a recent report by Sir Douglas Haig, in which the British Commander-in-Chief stated that the enemy's activity in the air had been mainly confined to his own side of the line, and in interrupting the work carried out by our Flying Corps.

"Yes," replied Mr. Billing, "that reflects on the intelligence of those in command of the German Flying Corps. They have chosen their own battle ground, and that has been to the detriment of our own men and machines."

Mr. Bright: Do you agree that our aircraft have crossed the German lines more often than the Germans have crossed ours?—Undoubtedly; and providing I could persuade my enemy to fly over my country I should do so.

Mr. Bright: We have taken more legitimate war risks than Germany?—Well, yes. Well, no. Do you mean air risks or war risks?

Mr. Bright: War risks.—Undoubtedly we have taken more risks than Germany throughout the whole campaign. We have been obliged to do it. That reflects directly to the discredit of the administration. I don't like to have to admit it.

Mr. Bright asked Mr. Billing if he could corroborate some figures to the effect that in four months 240 air combats took place, in which the R.F.C. engaged 400 or 500 hostile aeroplanes.

The Chairman: Where did you get these figures from?

Mr. Bright: Many of them are available generally. (To Mr. Billing): Have you seen the Fokker and other German aeroplanes?

—I have been denied every privilege in that direction by the R.F.C.

As an engineer, I do not think you would be impressed with their success. Out of the first 26 accidents inquired into by the Royal Aero Club Committee before the war, are you aware that only three happened to Government machines?

The witness did not reply to this question. He said that at the outbreak of war he was satisfied that the supply of engines would be one of the greatest troubles.

Mr. Billing expressed the opinion that we had got better men. He went on to say that at the outbreak of war he was satisfied that engine trouble would be one of our greatest difficulties.

Mr. Bright asked was it not fortunate that when war broke out we should have ready a design enabling firms who had never hitherto built aeroplanes to undertake the work?—That, sir, is the tragedy of the air service—that orders have been given for out-of-date machines to firms not used to making aeroplanes. He added that we had 50 h.p. machines and the highest speed attained was sixty to sixty-two miles an hour. Within seven days of the outbreak of war he personally designed a higher speed machine, and within another seven days not only were the drawings finished, but the machine was in the air and had broken all records.

Mr. Bright: It was all ready?—It was all ready, and flying at Brooklands.

Mr. Butcher said that before the war a great many people foresaw neither the probability of war nor its magnitude. These included responsible politicians and others.

Mr. Billing: I have no good word for them, or I will say for people usurping the position of statesmen.

Complaining of the country's lack of foresight, Mr. Billing said that with ordinary horse sense we could have bought a Zeppelin eight years ago and copied it.

Mr. Bright: As a patriotic pilgrim in the House of Commons and throughout the country you have come here to substantiate what you have said elsewhere, as well as to assist us in our inquiry?—I should not think of coming here to substantiate anything I had said elsewhere. I came here to help you with my experience and knowledge, such as they are, to effect reforms. There was no question of clearing my character. I never bother about that.

Mr. Bright: And our duty has been to test your allegations?—Not to test my allegations, but to decide the best methods of making the necessary inquiries.

Mr. Bright: How were you aware of the questions that would be asked?—By intelligent anticipation and the trend of events.

How did you acquire so many reports from officers?—Mr. Billing dived into a big tin box which he had by his side, and said: "By foresight and vision, Mr. Bright."

You say your charges against the air service have been robbed by the fact that you have not been allowed to deal with the naval wing of the air service?—Sure.

The naval air service is infinitely worse than the land air service?—Oh, infinitely.

Then your description of the De Rougemont of the land air service is mere milk and water compared with what you would describe the chief of the naval air service?—I agree with you. You know the peculiarities of Mr. De Rougemont. I always regret being personal, but I don't qualify or withdraw it. Nothing has happened here why I should do so.

Flight-Commander Farnall Thurstan, R.N.A.S., examined by Mr. Pemberton Billing, said he had been engaged in aviation since the first Rheims meeting. Before the war he represented the Bristol firm in India and many other countries. Two weeks before war broke out he was in Germany demonstrating the qualities of his firm's best machine—the Bristol Bullet. He got the machine away, but drawings were now in possession of an Austrian Government-subsidised firm in Vienna. He was now Admiralty representative on the Aircraft Board of Survey, a post suggested by himself. The board was instituted recently to ensure that competent people were in flying stations at home and abroad and that no machines not up to war service remained in commission.

He was for nearly a year in Paris buying materials for the Royal Naval Air Service, and the relations between himself and Captain Valentine, who was there on a similar mission for the Royal Flying Corps, were distinctly bad. They did not work in harmony or co-operate in any way; in fact, they were in competition, each trying to get the most supplies for his own service. The competition, however, did not relate to prices, which were fixed by the French Government. There was nothing personal at first, but eventually the relations became so bad that they were the subject of comment in official circles in Paris, and Captain Hodge, the British naval and, he understood, military attaché, made them the subject of a report. From a conference he attended in Paris, when Sir David Henderson was present, the impression he got was that he was not expected to be on par-

ticularly amiable terms with the military branch because they were trying to secure a monopoly of the French output, and he was told by his superior officers that he was "to keep his end up." He had been promoted, although he had only been in the service a few weeks, in order that he might be put on an equality with Captain Valentine. The friction had now largely been removed, and he believed some effort was now being made for the two branches to co-operate. If the French had not helped our flying services we should have been in a terrible position, and he still considered that the deficiency in our air service was due to ignorance, short-sightedness, and crass stupidity.

Mr. Billing (to witness): Do you consider that the critics on the air service are justified in their attacks?

The Chairman: No, no.

Mr. Billing: That is a point I want to make, and I am asking his opinion on it.

The Chairman: You are asking him to tell you what we are here to decide.

Asked by Mr. Billing as to whether his inside knowledge of the R.F.C. six months ago suggested to him that reforms were necessary, witness replied that it did, because in the progress of aviation everything possible should be done to bring everybody into line. As the result of this lack of enterprise, endeavour, and encouragement, many of our best constructors stopped inventing altogether.

The Chairman remarked that in peace time it was not to be expected that aeroplanes would be turned out in large numbers when they were not wanted.

Mr. Billing: Would you say that we should stop building ships for the Navy?

The Chairman: I am not giving evidence.

Mr. Pemberton Billing: You made a statement which left me rather troubled.

Mr. Billing: Do you know that naval pilots have refused to fly Army machines in France?—No; I know nothing about it; it is only rumour.

General Sir H. Smith-Dorrien: Do you believe that naval pilots have refused?—I know nothing about the incident.

General Smith-Dorrien: You make rather sweeping charges of inefficiency against the responsible heads of the R.F.C. Am I to understand that these charges relate to absence of foresight and imagination in making sufficient provision for the eventualities of a big war?—Yes, sir.

Do they refer at all to inefficiency in any other capacity?—No.

You do not suggest that they were unequal to their command in any other respect?—No, sir. I see nothing but from one point of view—that of aviation.

Commander Thurstan said pilots generally considered that the Royal Aircraft Factory's B.E. 2 C. two-seater was "a good machine when there was nothing else to be had."

Mr. Balfour Browne: In your opinion which is the best machine?—I should say the best all-round machine to-day is the Sopwith "1½ strutter," and the second best the Nieuport.

To the Chairman: He had pointed out the success of the Nieuport in January, 1915. The Admiralty took it up in March, and the War Office some time after that. He did not suggest inefficiency on the part of the responsible heads of the R.F.C., except in respect of want of foresight in making adequate provision for a big war. He added that although both Services went to the same firms in Paris, and bid against each other, it was not in prices, because in the majority of cases the French Government had fixed prices themselves. There was a battle between the two branches as to who should get the best stuff. He agreed that the Sopwith "1½ strutter" had only been available very recently. The later types of Nieuport were not really available yet, and the best Farmans were only available in the spring of 1915.

Sir David Henderson asked witness what he meant by "keeping his end up" when representing the R.N.A.S. in Paris. "You said that Captain Valentine received similar instructions. Have you any personal knowledge of such instructions?"—No, sir.

The witness, in reply to the Chairman, stated that the machine with which Lieutenant Warneford destroyed a Zeppelin near Ghent, and for which he was awarded the V.C., was a French machine. The lieutenant told him that he would never have accomplished the destruction of the German airship unless he had been using that particular machine.

In reply to questions put by the Chairman on behalf of Captain Goldney, M.P., he said that he had heard that the Nieuport had been refused by the War Office for the reason that no commission was paid. Cross-examined by Sir David Henderson, he said that he supposed that the commission would be paid to the military representative in Paris.

Sir David Henderson: I am going to call Captain Valentine.

The Chairman thanked the witness, who withdrew.

Captain Bennett Goldney, M.P., recalled, read a statement pointing out the difficulty of getting junior officers to come forward and give evidence for fear of the consequences.

General Henderson had stated that the suggestion that such officers would be victimised was an insult to the Flying Corps, but he added that he would not be responsible for what his brother officers would think. In the junior branch of the service that was regarded as a threat, but Mr. Goldney said that he would nevertheless take upon himself the responsibility of calling a number of officers to corroborate the statements he had made.

He suggested that the Chairman should receive statements from such officers, satisfy himself as to their *bona fides*, but that their names should not be disclosed to the air administration.

Sir David Henderson said that he had no objection to officers in the R.F.C. writing to the Chairman.

Manufacturers, with one exception, had invariably refused to give evidence, saying that they feared they would be stranded without further orders. The attempt to make the R.A.F. the master of the Air Service instead of its servant was the cause of the failure.

The Chairman, in intimating that the Committee would sit *in camera*, said that they wished to discuss the question of the difficulty of getting pilots to give evidence. "I have expressed the opinion once, and do so again," added Mr. Justice Bailhache, "that the difficulties which manufacturers profess to feel leave me quite cold."

At the resumption of the public sittings of the Committee on July 3rd, General Sir David Henderson was in the witness chair, and said that several personal charges had been made against him, and he wished to wipe them off first.

"One of those charges," he said, "was that I was the head of a group which had determined to obtain control of the whole air services, both naval and military, and that I have been working for that end. I wish to state that I undertook the charge of the Royal Flying Corps most unwillingly, and it was not until it was proved to me that it was my duty to subordinate my personal feelings to the public service that I undertook to assume my present position. In order to do this I had to relinquish the office of director of military training at Headquarters Staff, which I much preferred to hold."

Mr. Balfour Browne: When did you do that?—"In 1909. Since that time I have on several occasions urged that I should be replaced by a younger officer, and one more in touch with the practical aspects of flights, but I could not succeed in persuading the Army Council to agree with me in this view. It has been alleged, at this inquiry and elsewhere, that in 1912 I opposed the construction of airships for this country, and it has been suggested that it was mainly owing to my position that airships were not built. That charge is based on extracts from two reports of the sub-committee of the Committee of Imperial Defence held in that year. I have obtained permission of the Prime Minister that the two reports of the sub-committees of 1912 should be laid before this Committee. The first of these reports dealt mainly with aeroplanes and the second with airships. From these reports this Committee will be able to judge as to the accuracy of the charges made."

Sir David handed the reports to the Chairman, remarking, "They are both secret documents."

The Chairman: By some means or other one does not seem to have been as secret as it ought to have been.

Mr. Balfour Browne: Do these reports contradict the allegation that has been made against you?—These reports disprove it entirely.

Dealing with the assertion that owing to his opposition big engines for the R.F.C. were not developed, Sir David said that in 1913 manufacturers were asked to take part in an engine competition, under the auspices of the Admiralty and the War Office. The lowest horse-power permitted was ninety, and there was a large number of entries of British-built engines.

Sir David then admitted a serious mistake. That year, he said, the Royal Aircraft Factory had begun to design an engine of 200 h.p. In view of the large number of entries received for the engine competition, he considered that the position as regards the supply of engines of high power in the country was more or less safe, and he stopped work on the Royal Aircraft design. There was no question that he was wrong in his decision, for the designs were still unfinished at the outbreak of war.

Another charge was that the Royal Flying Corps Factory was, simultaneously, competitor and judge, and that the selection of aeroplanes had been from the beginning entirely in the hands of the Royal Aircraft Factory. Sir David emphatically denied the allegation, and declared that the factory since early in 1912 had not been consulted in regard to the selection of air machines. He had stopped the building of a certain R.A.F. scout which had been in use for 4½ months because Sopwith and other better machines could be obtained from private makers. The B.E. 2 C was sufficiently proved before the war to justify ordering in quantities. It had been very materially improved in the last six months. Of private designs now

in use, the de Havilland scout had been undertaken by the Aircraft Manufacturing Co. at his request.

Sir David Henderson went on to deal with fatal accidents in this country, presenting a return of such accidents since the B.E. 2 machine came into existence.

Mr. Pemberton Billing interposed: "Does 'peace' flying include flying against Zeppelins at night?"

"Yes," was the reply. "We can understand the anxiety to include flying against Zeppelins at night because no other machine could be used."

The machines possessed by this country at the outbreak of war, and the reasons why they were rendered obsolete, were dealt with in detail by the witness. He stated that the B.E. 2 C. had been materially improved within the last six months.

The Chairman: We have been told that the B.E. 2 C. as it exists to-day is very materially better than it was, and that is due to comparatively recent alterations.

Sir David: There have been considerable alterations.

With regard to fighting in the air and allusions made to certain machines being unprepared to defend themselves, went on Sir David, there were certain documents called R.F.C. *communiqués* issued by the R.F.C. headquarters, and they were for the information of officers generally. In these *communiqués* special attention was paid to fighting in the air and giving accounts of various fights for the information of pilots who did not take part.

"I went through them myself, and afterwards had the numbers checked to find out which types of our aeroplanes had been most successful in bringing down Germans. The number of Germans brought down between certain dates were in proportion as follows:—

B.E. 2 (of various types)	16	Morane...	4
F.E.	9	De Havilland ...	3
Vickers ...	7	Nieuport ...	2
Bristol Scout ...	5		

He would explain the meaning of these figures in private, as also at what cost these successes had been obtained.

The Chairman: Are you able to draw any inference from that as to which is the most successful machine? I daresay you are not, because you require to know what they are engaged on.

Sir David: The least dangerous work is fighting in a fighting machine. I think any pilot who has been engaged both in reconnaissance and artillery observation, or gone up on a purely fighting expedition, or has been bombing, would say that in fighting in a fighting machine there would be probably less casualties than in any other branch of the air service.

The next criticism dealt with was that aeroplanes and engines were so bad that the machines could not be lifted out of range of gun fire.

Sir David Henderson quoted the heights at which machines had been hit varying from 12,000 ft. to 14,000 ft. The height at which shells had been observed to burst was from 14,000 ft. to 15,000 ft. One lieutenant had a fuse of a German anti-aircraft shell marked 7,500 metres (23,125 ft.). At 20,000 ft. he did not think the Germans would be likely to waste much ammunition on aeroplanes.

The Chairman: None of these officers were killed by these shells?—No.

Nor were they brought down?—They were hit, but not brought down.

Sir David said that an officer flying at 14,500 ft. had said that he had observed a shell burst 1,000 ft. above him.

"I am rather wondering," said the Chairman, "at what height anti-aircraft guns are really effective. I know pilots have been brought down from a great height."

Mr. Balfour Browne: What would a pilot be doing at 14,000 ft.?—Waiting for a German, or he might have been on a journey.

Mr. Billing asked why these figures were being given in public.

The Chairman said the charge had been made that pilots had been "murdered" because they could not fly high enough. The figures given showed that machines had been hit even after they got to a very great height.

Mr. Billing made no reply.

Dealing with engines, Sir David said that assistance, both technical and financial, had been frequently given to manufacturers. In reply to the Chairman, he admitted that practically all the machines in this country at the outbreak of war were fitted with engines not of British design. The winner of the engine competition was a 100 h.p. Green. He would give in private the reasons why it was not adopted.

As regards the R.A.F. 90 h.p. engine, the Officer Commanding the 5th Wing in Egypt had reported 18 failures, an average of 1 in 110 hours' flying. In two of these cases there was no petrol in the tanks, in others the failure was attributed to the carelessness of a mechanic or to the breaking of wires.

In answer to Mr. Billing, the Chairman said that the answers to

all specific charges which had been made in public would be given in public.

Mr. Bright asked if it was only the horse-power of an engine that prevented us getting to Essen.

Sir David replied that there were other reasons. The designing of a large aeroplane was a much more complicated matter than the designing of a small one. It might be stated generally that none of the large aeroplanes designed by any country was satisfactory. Every country was still making strenuous efforts to solve the problem, and we were not by any means behindhand.

Such machines would have to be accompanied by fighting machines, and there was the difficult problem of ensuring that they did not become separated.

Mr. Balfour Browne: You cannot keep your destroyers in touch with your Dreadnoughts?—It is very difficult.

The Chairman: Mr. Joynson-Hicks put it that we ought to be able to stop the Zeppelins from starting, but this is also a question of distance. How far do you think it would be reasonable in the present state of aeronautics to expect an aeroplane to be able to go in order to destroy Zeppelin sheds and to return to our lines on a calm day?

Sir David: There are now in existence and in our possession aeroplanes which would be able to go to certain of the Zeppelin sheds and come back again in reasonable weather.

Sir David dealt exhaustively with the *personnel* of the Flying Corps, the system of promotion, &c.

"Will you deal with the fault of too many officers?" the Chairman asked. "It has been stated that this is a branch of the Army in which all are colonels and there are no privates."

Sir David refuted the suggestion that officers were appointed who had no knowledge of flying. The British service was unique in that the executive of the Flying Corps was confined to officers who had qualified as military pilots.

The Chairman: Two cases of improper promotion have been referred to, and it has been said that this is an army in which everybody is a colonel and nobody is a private.

Sir David promised to deal with that charge in private.

Sir David Henderson: In reference to the specific cases of "murder or criminal negligence," I have been accused in an unpleasant way of laughing at the details of hypothetical occurrences in the air. Since then I have had numerous anonymous letters on the subject, accusing me of utter heartlessness, and I would like to state definitely—

The Chairman: It is as well in the circumstances. I, too, have had quite a number of letters.

Mr. Pemberton Billing: So have I.

Sir David Henderson referred to Mr. Billing's speech of March 28th, as quoted by Mr. Billing.

"I should like any hon. member to picture himself in a machine absolutely alone, walled in by wires, with a pilot somewhere behind . . . He is sitting there helpless at 11,000 ft., the machine diving and sheering in all directions, and knows that the moment will very soon come when she will get into a nose dive and he will crash 11,000 ft. and be smashed to pieces simply because of the foolish folly of these officials who do not understand and will not be taught that dual control in such a machine would have saved that man's life."

It is a very serious accusation against me, continued Sir David, that I smiled at the reading of this extract. What I smiled at was the omission of the sentence—"he hears a gasp and a cry and turns round and sees that his pilot is dead." For a person who claims to have a knowledge of aeroplanes to make a rhetorical remark like that—well, one may be excused for smiling in such circumstances. I won't go into the matter deeper.

The Chairman: We have had this thrashed out before.—I may tell the Committee that my only son has been for 3½ months flying

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at the front on a B.E., my nephew is flying a B.E., my wife's nephew is also flying another Government machine, and I have several cousins flying another type. I naturally feel rather deeply about it.

Mr. Billing: Will you tell the Committee why you smiled?—Because it is untrue, or impossible.

In regard to the accusation that a pilot was allowed to fly over the Channel in a worn-out machine, he said that the technical officer who examined the machine and saw the pilot start would give evidence.

In another case where bombs carried on an aeroplane exploded, the opinion among the squadron was that the pilot, in his desire to get rid of the bombs before landing, misjudged his distance from the earth, and both he and the mechanic were involved in the explosions. Another view was that the bombs blew up when the machine landed.

Sir David Henderson went into Mr. Busk's death at Farnborough, in reference to which Mr. Billing had read a letter purporting to come from Mr. Busk's father. He had reason to believe that Mr. Busk's father had been dead for at least 10 years. The Court of Inquiry that was held was unable to find out the cause of the airman's death, but added that it was probably due to a leak of petrol combined with a backfire through the carburettor.

Mr. Billing remarked that he had submitted the original letter he had received to the Chairman.

In the case of Captain W. Lawrence, whose Bleriot machine broke during a nose-dive, Sir David said that Captain Lawrence's theory as to bombing was to fly to a great height, dive, flatten out, release his bombs, and climb out of danger. The objective of his attack was well guarded by anti-aircraft guns. At some point of the dive the machine broke. He believed that the captain came down with his engine on for 3,000 ft. at least.

Sir David told Mr. Billing that if a machine was once supposed to be unsafe the type was immediately discarded. This type of Bleriot was discarded soon after—not because of the accident, but because the machine was too slow.

The report of the Court of Inquiry into the accident in which Lieut. Tennant was involved was read by General Henderson. Capt. Jones was the passenger, and the machine was fitted with dual control. The report of the Court was that the pilot committed an error of judgment in attempting to turn at too low an altitude.

The case of Lieutenant Littlewood, who descended in the German lines at Lille, was next referred to. In a letter to his father Lieutenant Littlewood said that from Boulogne he was not certain of his location, "for the map I was provided with was rotten, and not correct." When about four miles over what he thought was St. Omer, Lieutenant Littlewood stated that anti-aircraft guns began to fire at them, and some shrapnel struck their planes. Thinking it was our own gunners firing at them in error, he made a hasty descent. When about 500 ft. up the engine gave out, "and we landed into some telegraph wires, which smashed up the machine, but neither of us was injured."

Captain Grant, his observer, in a letter to his wife, wrote:—

"By all the rules of the game I, who was sitting at the front, should have been killed. Instead, I made a hole in a turnip field and got up cursing our gunners for firing at us. I got up and had the surprise of my life to find that they were Germans."

Mr. Billing suggested that had the pilot had a good map probably he would have landed in our lines.—I have no knowledge of what map he had, and I have had no complaints from pilots about the maps they are supplied with.

Mr. Billing: Do you say there is no one to blame for delivering this valuable machine to the Germans?—I have not said that no one is to blame, but I do not admit it until I know something more about the affair.

The Committee again adjourned until the next day.

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A Protest by Sweden.

THE Swedish Minister at Berlin has protested to the German Government because a German seaplane attacked the British steamer, "Portlock" while inside Swedish territorial waters.

German Motor Company's Profits.

THE Benz Company of Mannheim, one of Germany's largest motor manufacturers, earned net profits of £600,000 in 1915-16, which was more than twice its heaviest peace-time earnings. It declared a 20 per cent. dividend for the year, compared with 12 per cent. in the year before the war.

Austrian Troops Fed by Aeroplanes.

ACCORDING to a correspondent of the *Corriere d'Italia*, two regiments of Jaegers, finding themselves besieged in the Frenzela Valley, are being furnished with food from aeroplanes.

A Double Fatality in Kent.

WHILE starting off from a south coast aerodrome on his return to France on June 29th, Flight-Lieut. G. R. Talbot, R.N.A.S., was killed through the machine side-slipping soon after leaving the ground. An air-mechanic who was accompanying him was also killed.

Pilot Killed in Motor Cycle Accident.

A VERDICT of "Accidental death" was returned at an inquest relative to the death of Norman Vivian de Beer, R.N.A.S. He came from South Africa, and a few days before death had obtained his pilot's certificate. On June 22nd while riding a motor cycle in Edgware Road, he came into collision with a motor car and was thrown through the wind screen. The driver of the car was exonerated.

BRITISH AIR WORK.

THE following second *résumé* of incidents extracted from recent reports of the Royal Flying Corps in France has been issued by the Air Board :—

May 31.—A British reconnaissance was attacked by three Fokkers when in the neighbourhood of Cambrai. The enemy were first seen diving at our machines from the rear, with the sun behind them. Our machines, which were heavily fired at, retaliated as occasion offered. Soon after the fight began one of the Fokkers was seen to turn half a loop, sideslip badly and nose-dive. It was last seen nose-diving, having apparently been hit by our fire.

One of our machines was last seen soon after the commencement of the fight; but owing to the fact that all the machines were busily engaged in the running fight, which was of a persistent nature, its fate was not observed. About the same time, however, Lieutenant C., pilot of one of our machines, reports that a machine, apparently out of control, dived over him, almost touching his top plane, and disappeared, no more being seen of it. The two remaining Fokkers pursued our reconnaissance, one breaking off the fight or else being compelled to descend before reaching the lines, while the third followed until within the zone of the advanced German anti-aircraft guns.

June 1.—Lieutenant D., with Lieutenant E., while on artillery duty, attacked a hostile machine near Laventie. Fire was opened at about 300 yards, but at this moment Lieutenant D. was attacked by a Fokker from above and behind. The Fokker dived to within forty yards, when Lieutenant D. swerved slightly to avoid the enemy's fire. Lieutenant E. then attacked the Fokker at point-blank range. The Fokker banked over to the left, and something which looked like a box fell out. The machine then nose-dived, and was last seen spiralling down close to earth. From other sources it is reported that the Fokker was seen to fall to earth at the north-east corner of Bois de Biez.

A kite balloon was carried away by a sudden gust, the cable running off the winch, at 7.25 p.m. The occupants both made parachute descents, landing safely. Lieutenant F. helped Lieutenant G. before descending himself, and consequently landed close to the trenches. Hostile machine-guns opened fire on him, but he escaped unhurt. The balloon drifted over the German lines.

June 8th.—Lieutenant H. and Lieutenant J. directed a battery on to a train at Salome. Six direct hits resulted, and the train was set on fire, and was seen to be still burning one hour and a half later.

Lieutenant K. and Captain L. ranged a battery on to a railway station. Large explosions were seen in a shed, which was totally demolished.

June 10th.—Lieutenant K. and Captain L., in a machine, when on artillery duty, saw a Fokker flying over the enemy's trenches. They followed the German for about 1½ miles in the direction of Lille, where he turned to attack. Our officers opened fire at a range of about 50 yards. When level with the tail of our machine the enemy turned sharply and dived, and was further fired at as he turned. He dived more steeply, and was observed by Lieut. K. to crash to earth in a field near Haubourdin.

June 17th.—Lieutenant M. and Lieutenant N. left their aerodrome at about 12.45 p.m. to intercept a hostile reconnaissance. Eight hostile machines were observed at 7,500 ft., approaching from the direction of Doullens. The British machine flew towards them, and when almost directly underneath, Lieutenant N. opened fire. The

British machine then turned, and when at about 400 ft. below the German formation, opened fire into one of the tail machines. A few minutes later, this machine was seen to glide down, and passing low over the trenches, land just north of Bois de Biez. Lieutenant M. now endeavoured to cut off the main body of hostile machines. In this he failed, but succeeded in catching the last hostile machine, just over the trenches at 6,000 ft. When within 100 yards the German dived steeply, followed by our machine firing at about fifty yards range. The enemy observer appeared to be out of action, as no reply was made to our fire. Lieutenant M. continued the pursuit until within 2,500 ft. of the ground, when the German was seen to land in a field about a mile north-east of Achiet le Petit. Our machine recrossed the trenches at 2,500 ft.

Altogether there were thirty combats in the air on this day.

June 18th.—Two machines, Pilots Captain O. and Lieutenant P., Observers Lieutenant Q. and Sergeant R., working together, encountered two Fokkers east of Lens at 4.15 p.m. at about 9,000 ft. The machines chased the Fokkers down, diving steeply in small circles, and firing all the time. Captain O. being short of petrol left his opponent diving vertically at about 2,500 ft. The other Fokker was shot down by Sergeant R., and fell to earth from 4,000 ft.

Lieutenants S. and T., No. 3 Squadron, engaged and dispersed a column of infantry in Martinpuch with machine-gun fire.

A machine, Pilot Lieutenant U. and Observer Corporal V., when patrolling over Annay at about nine p.m., attacked three Fokkers seen behind the enemy's lines. One of the latter went off. The remaining two made for Lens, towards another British machine, which they attacked. Lieutenant U. followed and joined in the fight, diving on to one of the attacking Fokkers, which turned away, and dived perpendicularly. It was seen by an anti-aircraft battery to fall to the ground. When Lieutenant U. turned again the other British machine and Fokker had disappeared. This British machine is missing, and is reported to have landed in the enemy's lines.

Captain Y., on a Nieuport, and Lieutenant Z., on a de Havilland, engaged a hostile reconnaissance of six machines in the neighbourhood of Arras, driving one down, near Terre Mesnil, east of Doullens, where it landed on its left wing, the pilot and observer being captured. One of them was slightly wounded.

The following account of the incident which occasioned the death of Lieutenant Immelmann is furnished by the Air Board :—

"On June 18th last one of our F.E. aeroplanes, whilst patrolling over Annay, at about 9 p.m., attacked three Fokkers. One immediately retired, whilst the other two turned towards Lens and proceeded to attack another F.E. which was then approaching from that direction.

"The first-mentioned F.E. (Pilot Lieutenant McC., observer Corporal W.) followed and joined in the fray, and, diving steeply on one of the attacking Fokkers, caused it to plunge perpendicularly to the ground. It was seen to fall to earth by one of our anti-aircraft batteries.

"A subsequent report from another machine in the neighbourhood states that the Fokker went to pieces in the air and both wings broke off. Extracts from the German newspapers relating to the death of Lieutenant Immelmann make it clear that the pilot received his death as outlined above."

AIRCRAFT WORK AT THE FRONT.

British. *General Headquarters (France), June 27th.*

"Yesterday in the air numerous hostile aircraft were encountered on the enemy's side of the line. Five of our machines engaged four Fokkers, two of which were brought down and fell out of control. Two more of the enemy's machines were driven down in the course of the day. Our casualties, one machine missing."

General Headquarters, June 28th.

"Bad weather yesterday prevented much flying."

General Headquarters, June 30th.

"The weather yesterday was unfavourable for aerial work. As a result of one of the few combats in the air an enemy aeroplane was driven to the ground with a damaged engine. The Germans' heavy artillery has been in action during the day on the front between Souchez and Hohenzollern and also about Oitze."

General Headquarters, July 1st.

"Yesterday, in spite of a high wind, a large amount of successful work was done in the air. An important railway dépôt was attacked with powerful bombs, and a large number of other bombs were dropped on dépôts, railway junctions, batteries, trenches, and other points of military importance in the enemy's lines.

"Considerable aerial activity has taken place to-day during the battle, but full details have not yet been collected.

"Our machines attacked a railway train on the line between Douai and Cambrai. One of our airmen descended to below 900 ft. and succeeded in dropping a bomb on one of the trucks, which exploded. Other pilots saw the whole train in flames and heard further explosions."

General Headquarters, July 2nd.

"Yesterday our aeroplanes were very active in co-operation with our attack north of the Somme, and afforded valuable assistance to our operations. Numerous enemy headquarters and railway centres were attacked with bombs. In one of these raids our escorting aeroplanes were attacked by twenty Fokkers, which were driven off. Two enemy machines were seen to crash to earth and were destroyed.

"Some long-distance reconnaissances were carried out, in spite of numerous attempts by enemy machines to frustrate the enterprises. Three of our aeroplanes are missing. Our kite balloons were in the air the whole day."

General Headquarters, July 3rd, 2.30 p.m.

"A very large amount of work was done by our aircraft yesterday. In the early part of the day several attempts at offensive

action on our side of the line were made by hostile aircraft in large parties. All these were driven back, and subsequently the enemy's aircraft were held far behind the German lines, with the result that our artillery machines were able to do their work without interruption from hostile aircraft.

"During the day a very large number of aerial combats took place over the enemy's lines. Six hostile machines are known to have been brought down, and five others driven down severely damaged. Seven of our machines are missing."

General Headquarters, July 3rd, 10.43 p.m.

"Yesterday there was a marked increase in the number of hostile aeroplanes on the southern sectors of our front, but in spite of this our airmen carried out in a most gallant manner all the duties assigned to them."

"To-day one hostile kite balloon was destroyed by us and fell in flames. Since the commencement of the battle we have lost a total of 15 machines along the whole of the British front."

French.

Paris, June 27th. Afternoon.

"In Belgium, in the course of a reconnaissance, three of our fighting machines fired 65 shells on German vessels near the Belgian coast."

Paris, June 27th.

"A German radiogram reports the terrible effects of the shelling of the town of Karlsruhe on the 22nd inst. by French aviators. Two hundred and fifty-seven persons were either killed or wounded, and the said radiogram denounces the 'villany of the said shelling of an open town without any military objective.'"

"It is perhaps well to mention that the bombing of Karlsruhe was ordered, as was announced in the French *communiqué* issued on the evening of the 22nd inst., as reprisals for the recent bombardment of the open towns of Bar-le-Duc and Lunéville, which caused numerous innocent people to lose their lives. France has decided to resort to reprisals upon the enemy who respects none of the laws of warfare."

"This decision has been arrived at only after a number of outrages had been committed by the Germans. From February 3rd, 1916, to May 19th, 1916, during which period the French had refrained from shelling towns behind the enemy's front, the Germans have shelled Bethune six times, Amiens six times, Hazlebrouck three times, Bar-le-Duc twice, Epernay four times, Fiemmes three times, St. Dié thirteen times—by long-range guns and aeroplanes—Gerardmer five times, Lunéville nine times, Baccarat five times, Raon l'Etape five times, &c."

"France has sufficiently shown to the world by her long patience her desire to keep the horrors of war from the civilian population, but, forced by Germany to change her attitude, she has resolved in future to regulate her conduct by that of Germany."

Paris, July 1st. Evening.

"During the night of June 29th-30th a group of our aeroplanes carried out the following bombardments: Eighteen shells of 120 mm. were dropped on the station of Nesles; six of 120 mm. on Roye, where a fire broke out; two on a motor convoy to the north of Nesles. These were seen falling in the midst of the wagons."

"The same night thirteen of our aeroplanes threw sixty bombs on a German munition work in the environs of Noyon. The mark was hit by a large part of the projectiles, and their effects were observed. During the night of June 30th-July 1st seven of our aeroplanes again threw thirteen bombs on the station of Nesles and the level crossing, and six bombs on the adjoining military establishment, where a fire was observed."

"In the course of a reconnaissance one of our pilots, attacked by a Fokker and wounded at the first onset, succeeded in felling his adversary, who fell in the forest of Besanges. On his return the same pilot was again attacked by an enemy biplane and wounded a second time. He succeeded in escaping and returning to our lines."

Paris, July 2nd. Evening.

"Our aeroplanes set fire to three captive balloons in the region of Verdun. Sergeant Chainat felled his fifth German machine, which crashed to earth near Peronne. During the night of July 1st-2nd one of our air squadrons dropped forty-eight bombs on the station of Longuyon, eight on the station of Thionville, and sixteen on the station of Dun. Another squadron dropped thirty-three bombs on the station of Briulles."

"In broad daytime, on the 2nd, twelve of our aeroplanes bombarded the station of Amagne Lucquy. Sixty bombs struck the buildings and railway lines. A train was destroyed."

"About three o'clock this morning a squadron of enemy aeroplanes dropped several bombs on the open town of Lunéville. Note was taken of this act with a view to reprisals."

Paris, July 3rd. Afternoon.

"During the artillery action preparatory to the offensive, our

aviators set fire to thirteen captive German balloons, and two during the day of July 1st. During the attack our pursuing aeroplanes were masters of the situation, only nine enemy aeroplanes putting in an appearance, not one of which crossed our lines. One of the enemy machines was destroyed."

Russian.

Petrograd, June 27th.

"In the region of Mesvitche, south-west of Lutsk, an Austrian aeroplane was brought down by our artillery. The airman and observer were wounded and captured."

"In the Baltic Sea on Monday, in the Irben Strait (Gulf of Riga), three of our seaplanes engaged four German machines. One enemy seaplane was brought down and fell in the water. In spite of the attempts of the enemy to save this machine it was bombed and sank. Our seaplanes returned undamaged."

Petrograd, June 28th.

"Enemy aeroplanes are making frequent raids on our lines. They dropped 68 bombs during a nocturnal raid on the town of Dvinsk yesterday. The damage both to property and life was insignificant. Two petrol tanks were burned."

Petrograd, June 30th.

"Yesterday morning enemy aviators dropped thirty bombs on Luzk."

Petrograd, July 2nd.

"A Turkish aeroplane flew over Erzurum."

Petrograd, July 3rd.

"On the right wing, in the region of Riga, our land and sea artillery bombarded the enemy's lines. An enemy aeroplane dropped unsuccessfully twenty bombs upon our ships. Attacked by our seaplanes, it disappeared."

Italian.

Rome, June 27th.

"Nothing of importance took place on the remainder of the front. One of our air squadrons, consisting of ten machines, yesterday dropped fifty heavy bombs on Calliano railway station, in the Lagarina valley. Satisfactory results were observed, and the machines returned safely. This morning an Austrian aeroplane was brought down in an air fight about Verona."

Rome, June 29th.

"This morning two hostile aeroplanes dropped some bombs on Udine. One of these fell on the civil hospital, killing two women and wounding one. No other damage was done."

Rome, June 30th.

"Hostile aeroplanes dropped bombs on Brescia and Bassano, causing one casualty and slight damage. Our Caproni aeroplanes bombarded enemy encampments in the Upper Assa valley, and returned safely."

"On Wednesday evening our seaplanes and torpedo-boats while making a reconnaissance in the Gulf of Trieste were ineffectively attacked by the shore batteries and by two groups of enemy seaplanes. The latter fled hastily as soon as they were counter-attacked at close quarters by our chasing aeroplanes."

"There is reason to believe that the enemy machines were repeatedly hit. All our aerial and naval units returned in safety to their bases."

Rome, July 2nd.

"Enemy aircraft dropped bombs on Marostica, and on various places in the low Isonzo region: none killed and the damage was very slight."

Rome, July 3rd.

"Our aircraft made raids on the Upper Assa Valley and returned safely."

German.

Berlin, June 27th.

"Numerous bombs were dropped on the railway goods station at Dvinsk."

"A British biplane was shot down in an air fight south-east of Arras. The occupants, who were wounded, were made prisoners."

Berlin, June 28th.

"On June 25th, Lieut. Hoehndorf put out of action his seventh enemy aeroplane near Rancourt. The machine in question was a French biplane. An enemy airman was shot down near Douaumont."

"It has been ascertained on further inquiry that the particulars given in the report for June 23rd, stating that among the attackers on Karlsruhe there were some English prisoners is incorrect. All the prisoners made on that occasion were French."

"On Monday one of our naval aeroplanes, which became engaged with five Russian aeroplanes at the western entrance of the Gulf of Riga, forced one of them to land. In the course of another air fight in the same sector between five German and five Russian aeroplanes two enemy machines were forced to land, badly damaged. Owing to damage to her propeller one of our war machines came down on the water and sank. Her crew were picked up by another German machine and brought back to port. Though our aeroplanes

were heavily bombarded by enemy destroyers they returned with all their pilots and observers unhurt."

Berlin, June 30th.

"Captain Boelcke, on Tuesday evening, shot down his 19th enemy aeroplane near the farm of Thiaumont. Lieutenant Barschau yesterday shot down his fifth enemy aeroplane north of Péronne (Somme). Near Boureuilles, in the Argonne, a French biplane was brought down by our anti-aircraft fire."

Berlin, July 1st.

"The Kaiser has conferred the Ordre Pour le Mérite on Lieutenant Wintgens, in appreciation of his splendid achievement in the air fight yesterday, when he shot down a French biplane south-west of Château-Salins. Near Bras an enemy aeroplane was brought down by gunfire, and another was put out of action by machine-gun fire near the work of Thiaumont. An attack by an enemy air squadron against Lille caused no military damage, but considerable casualties among civilians, especially in the church of Saint Sauveur, where over fifty persons were killed or wounded. Many French inhabitants were killed or wounded by air attacks and French and British artillery fire at Douai, Bapaume, Peronne, and Mesle."

Berlin, July 2nd.

"The enemy's aerial service displayed great activity. Our squadrons gave battle at various points and inflicted heavy losses

upon him. For instance, in the region of the front attacked and that of the Meuse 15 enemy aeroplanes were shot down, eight British and three French falling within our lines.

"First Lieutenant Baron von Althaus has put out of action his seventh opponent. We lost no aeroplanes, but some pilots or observers were wounded."

Berlin, July 3rd.

"In the numerous aerial engagements fought during yesterday six enemy aviators were brought down, four of whom fell within our lines. Lieutenant Mulzer has thereby put his seventh, Lieutenant Parschau his sixth opponent out of action. An enemy biplane was brought down over Douai, and another the day before yesterday to the east of Pervyse (Ypres front), by our anti-aircraft guns. Two French captive balloons were shot down by our aviators in the neighbourhood of Verdun.

"Russian torpedo boats and the ship of the line 'Slava' bombarded the Courland coast to the east of Raggasem without result.

"They were effectively caught by our coastal batteries, and attacked by our aeroplane squadrons. The 'Slava' was struck."

Turkish.

Constantinople, July 1st.

"Caucasian Front.—In the centre an enemy airman, fearing the attacks of airmen sent up against him, was forced to land."

Bulgarian.

Sofia, June 27th.

"On the 26th enemy airmen unsuccessfully bombarded the village of Merzentzi."

From Other Sources.

According to a report from Amsterdam on June 23rd:—

"Sounds of heavy gunfire were heard on the previous morning coming from the direction of the German island of Borkum. Some hours afterwards a Zeppelin was sighted proceeding from Emden to Borkum."

The *Daily Telegraph* correspondent in Paris, writing on June 23rd, says:—

"The story of Nungesser, a French aviator, is probably unique, even in this war. When hostilities broke out he was a Hussar of twenty-two. On September 3rd, during the retreat from Charleroi, he was mentioned in despatches for having captured a German motor car, put the German officers occupying it *hors de combat*, brought back the car and valuable papers which it contained under enemy fire, and, finally, placed his commanding officer, who was wounded, under shelter. The car was a French Mors, stolen by the Germans, and after that Nungesser used to be called the Mors Hussar. Some time after that, driving the same car, he passed some old soldiers, who said: 'Why is this youth a mere motor-driver, while we are in the trenches?'

"Thereupon Nungesser refused to be a motorist any more. He became an aviator. He took part in fifty-three bombardments, and was thrice, as aviator, mentioned in despatches. But in an aerodrome, while testing a new machine, he met with an accident, had his jaw broken, and sustained a wound in the skull and broken ribs. He remained five days unconscious. When he came out of hospital he was finally invalided, but this made him angry. He used influence, went back to the front in an aeroplane, and in one week brought down two enemy machines and one 'sausage.' Then he was promoted sub-lieutenant. His latest feat was to fight against six enemies—three Fokkers and three L.V.G.'s. He saved himself by a brilliant idea. He dashed right among his enemies, who stopped firing for fear of shooting one another. The Frenchman came back safe, with twenty-eight shots through his aeroplane, seven in the motor, one bullet through his shoe, and another through his helmet."

Mr. Philip Gibbs, writing to the *Daily Telegraph* on June 27th, with the British armies, says:—

"The weather has not been good for our gunners, and their observations may have been a little hindered by the rain-clouds which have obscured the view. But to-day it seemed to me that we had the better means of observation. Immediately in front of where I stood I counted twelve of our kite balloons poised above the lines, so that the observers in their hanging baskets could see far across the enemy's trenches to his battery positions.

"Time was when I used to see 'German sausages,' as we call those balloons, staring down at us, so that one was conscious of unpleasant observation when one took a motor car over exposed ground. To-day there was not a single hostile balloon opposite those twelve of ours. The rapid destruction of six of them has, I fancy, caused the hauling down of others. If they cannot put them up again the enemy has lost the eyes of his artillery in places where he is not on high ground, from which observations may be made more safely."

Mr. W. Beach Thomas, writing to the *Daily Mail* from British headquarters in France on June 27th, says:—

"In one district south of Arras the German heavy artillery has

been used very generously in reply, but wherever I have watched the duel it has been one-sided in more ways than one. We have profited by a dozen pairs of eyes to one. I refer to the kite balloons, which are the bitterest enemy to the artillery.

"Our new means of destruction have put such fear into the enemy that for the moment you may count at least six on our side to one on the other. The other day when I was in Arras the proportion was reversed. Of course, in this war no point of technical superiority lasts long; and the German is a quick imitator; but for the moment we lead."

The *Times* special correspondent at the British headquarters, writing on Saturday, says:—

"Other things also were in the air. Immediately behind us overhead hung one of our uncouth kite balloons, bathed in sunshine and stretching far away to right and left one could see a line of them marking the direction of the front. And in and out our aeroplanes moved continuously. One squadron of six together sailed splendidly and insolently straight over the German lines and far beyond. Other single machines patrolled unwearingly up and down, perfect testimony to the supremacy which we have indisputably asserted in the air along all our front."

The *Daily Telegraph* special correspondent, on Saturday evening, says:—

"In the northern area Lille station was successfully bombed by a flight of our aviators, who, on returning, were attacked by twenty Fokkers, two of which they drove down in flames, all the British machines returning.

"It is noteworthy that very few enemy machines were seen in the air this afternoon. Many raids continue to be made by ours in the northern part of the line."

Mr. Philip Gibbs, in his despatch to the *Daily Telegraph*, describing Saturday's fighting, says:—

"Along the roads towards the battlefields there was no movement of troops. For a few miles there were quiet fields, where cattle grazed, and where the wheat grew green and tall in the white mist. The larks were singing high in the first glinting sunshine of the day above the haze. And another kind of bird came soaring overhead. It was one of our monoplanes, which flew steadily towards the lines, a herald of the battle. In distant hollows there were masses of limber, and artillery horses hobbled in lines.

"The battle-line came into view, the long sweep of country stretching southwards to the Somme. Above the lines beyond Bray, looking towards the German trenches, was a great cluster of kite balloons. They were poised very high, held steady by the air pockets on their ropes, and their baskets where the artillery observers sit, among the rays of the sun. I counted 17 of them, the largest group that has ever been seen along our front; but I could see no enemy balloons opposite them. It seemed that we had more eyes than they, but to-day they have been staring out of the veil of the mist."

"Over my head came a flight of six aeroplanes, led by a single monoplane, which steered steadily towards the enemy. The sky was deeply blue above them, and when the sun caught their wings they were as beautiful and delicate as butterflies. But they were carrying death with them, and were out to bomb the enemy's batteries and to drop their explosives into masses of men behind the

German lines. Further away a German plane was up. Our anti-aircraft guns were searching for him with their shells, which dotted the sky with snowballs."

Mr. W. Beach Thomas, in his description in the *Daily Mail* of the fight, says:—

"It must also be understood that the struggle was on three planes, below the ground, on it, and above it. To give just one local instance, a deep mine, packed with many tons of the highest explosive known to science, was blown up near La Boisselle (east of Albert) by our miners, who had tunnelled to astonishing depths. At the other extreme our towering aircraft had succeeded by the end of the morning in driving off every visible enemy from 'the layers of the upper air' in the neighbourhood of the battle; and scores of our great kite (sausage) balloons hung like clothes on an invisible washing line, at a commanding level along all the battle front. I counted exactly twenty-two to my right, and could not detect a single German with the strongest glasses."

"One after another our balloons had risen to the full height of their tether in a long line stretching quite out of sight. Their kite-

tails streamed to the eastward, advertising the arrival of a good, steady west wind about to blow Heaven knows what fumes and smoke and dust and ashes from the front to the back trenches of the enemy's first line. But as yet the observers could look clear into the cockpit of battle: into the village of Fricourt, into Serée, into Beaumont-Hamel, where every leaf had been blown from the shattered trees by our fire, and every shelter and dug-out was a mangled mess."

"The highest thing I saw in the place was one ten-foot wall or so; and the trenches running into it looked like the first shale-tips of a deserted mine. And our Army had yet better eyes than the balloons. Right over my head, against the clear background of a fleecy layer of cloud, a whole squadron of our aeroplanes, almost cloud high, but pencilled in marvellous distinctness against the cirrus flakes, flew as the crow flies, direct for their target. Argus-eyed and with more than a Cyclops voice they saw and shouted back the news of the guns' precision, untouched by the monstrous tumult below. They left the dappled puffs of shrapnel in beaded ropes behind them, as a fish leaves bubbles, till soon I could not tell which was cloud and which was smoke."

PERSONALS.

UNDER the above heading will be published weekly particulars of a personal character relating to those who have fallen or have been wounded in the country's service, announcements of marriages and other items concerning members of the Flying Services and others well known in the world of aviation. We shall be pleased to receive for publication properly authenticated particulars suitable for this column.

Casualties.

Lieutenant ERIC HINCKES BIRD, Royal Fusiliers, attached R.F.C., who died on June 27th of wounds received in action, was the second son of the late Dr. Arthur Hinckes Bird. He was gazetted Second Lieutenant in the Royal Fusiliers at the outbreak of war.

Second Lieutenant STEWART GORDON RIDLEY, R.F.C., whose death is officially announced, was a son of Mr. T. W. Ridley, of Willimoteswick, Redcar. He was educated at Mr. J. Roscoe's school at Harrogate and at Oundle, where he was in the O.T.C. for three years. He left school shortly before the war, and was preparing for business, but enlisted in September, 1914, with his brother, as private in the 4th Yorkshire Regiment, and in February, 1915, received a commission in the 12th Yorkshire Regiment. He left that regiment in July for the Royal Flying Corps, and went to France in August, 1915, as an Observer. He was out for four months, and returned in December, and subsequently took his pilot's certificate. He was killed on June 15th within a few weeks of attaining the age of 20.

Captain LEONARD HERBERT SWEET, Hampshire Regiment and R.F.C., aged 23, who was killed in a fight with an enemy machine on June 22nd, was the youngest son of the Rev. C. F. and Mrs. Sweet, of Symondsbury Rectory, Bridport, Dorset. He was educated at Sherborne School and Sandhurst, which he entered in 1912. He obtained his commission in the 1st Hampshire Regiment in March, 1913, and was with his regiment at Le Cateau and during the subsequent retreat. He joined the Royal Flying Corps in December, 1914. In February last he was promoted Flight-Commander in the R.F.C., with the Army rank of Temporary Captain.

Flight-Lieutenant GEOFFREY RICHARD HENRY TALBOT, R.N.A.S., whose death is officially announced, was killed instantaneously at Dover on June 29th when starting on a flight to France. The aeroplane was caught by a gust of wind and side-slipped, and was wrecked. The mechanic accompanying him was also killed. Flight-Lieutenant Talbot, who was born in 1888, was the younger son of the Hon. Alfred Talbot, of Little Gaddesden, and grandson of the 18th Earl of Shrewsbury and Talbot. He was educated at Eton, and having a great taste for mechanics entered the service of the East Indian Railway Company. His services were given to the public for the war, and he joined the Naval Air Service, rapidly becoming an expert and steady pilot. He obtained his "Wings" in 1915, and received promotion shortly before his death. He made many flights to and from France, whence he had only returned the previous day to his death.

Married and to be Married.

Flight-Commander OGILVY DALGLEISH, R.N.A.S., was married at Ulverston Parish Church last Friday to Miss SYBIL GUINEVERE BUTLER KENNEDY, youngest daughter of Mr. Myles Kennedy, of Stone Cross, Ulverston. The bridegroom is the only son of Captain James Ogilvy Dalgleish, of Glebelands, Wokingham, and nephew of Admiral Carden.

An engagement is announced between Flight-Lieutenant CONWAY WALTER HEATH PULFORD, R.N., youngest son of Colonel R. R. Pulford, C.I.E., R.E., and ELINORE MILDRED (MINDRA) NORMAN, only daughter of Mr. G. H. Norman, M.A., of Park Lodge, Budleigh Salterton, formerly of Petergate, Tiverton, Devon.

LEGAL INTELLIGENCE.

Zeppelin Raids and Liability for Rent.

A UNIQUE case—Barton and another *v.* Allocca—was heard in the King's Bench Division on June 30th. The plaintiffs claimed £35 as arrears of rent for Michaelmas quarter, 1915, for a ground floor shop and basement in Addle Street which was damaged by a Zeppelin bomb, while the defendant counterclaimed for loss of profit at £5 a week and further damages equivalent to the rent until the damage was made good.

Counsel for the defence intimated that plaintiffs had obtained judgment on the claim, and in delivering judgment on the counterclaim, Mr. Justice Darling said that he found that the allegation that the plaintiffs had broken their covenant to repair was not established. The premises had been damaged by a bomb, and the plaintiffs had to get permission from the authorities before they could undertake the necessary repairs, and they got that permission and did the work as soon as they could, without any undue delay. The covenant did not say that while the landlords were carrying out the structural repair the tenant should not be in any way interfered with. On the facts he found that there had been no breach of the covenant for quiet enjoyment. The counterclaim therefore failed, and there must be judgment for the plaintiffs.

The Use of the Trade Mark "Sunbeam."

AN interesting decision was given in the Chancery Division on Monday, Mr. Justice Younger issuing an order directing the

Registrar of Trade Marks to proceed with the registration in clause 6 of the Trade Marks Act, 1905, of the mark "Sunbeam-Coatalen" for internal combustion engines and parts thereof for aeroplanes and all motor vehicles other than motor cycles.

The application was resisted by the Registrar on the grounds that the goods bore such a strong resemblance to those for which various "Sunbeam" marks had been registered by John Marston, Ltd., which was closely connected with the applicant, as to be calculated to deceive, and that any further splitting of the mark was highly undesirable.

His Lordship said in his opinion the businesses were quite distinct, the goods were not identical, and there had never been any confusion in the public mind. As the firm was carrying on an honest and legitimate enterprise, he should exercise his discretion in its favour and issue the order.

The Blériot Manufacturing Aircraft Co., Ltd.

UNDER the winding-up of the Blériot Manufacturing Aircraft Co., Ltd., a summary of the state of affairs has been issued by the Official Receiver, the liabilities being returned at £4,515, with an estimated surplus in assets of £86,206. The assets include cash, £41,452; investments in shares (War Loan), £29,100; a book debt, £14,242; unpaid calls, £5,157; and Deperdussin stock, £100.

The Official Receiver has also issued a report outlining the career of the company, with the main details of which, however, readers of FLIGHT are fully conversant.

AVIATION IN PARLIAMENT.

The Loss of an Aeroplane.

In the House of Lords, on June 27th, Lord Montagu of Beaulieu asked whether the Government could give any information as to the start, flight, and landing of a certain F.E.2.D. aeroplane which left Farnborough on May 31st and had not yet joined the squadrons at the front; and whether any wireless message had been received in reference to it. He said that he would not refer to the incident if anything that he intended to say would give any assistance to the enemy; but he thought the House was entitled to have the information which he sought, and also to have a pledge from the Government that steps should be taken to ensure as far as was possible that such an incident should not occur again. On the morning of June 1st the aeroplane left Farnborough to fly to France. It flew across the Channel, passed over our lines and the German lines, and descended unhurt with its pilot and observer in the German aerodrome at Lille. There is a possibility of a mistake being made in distinguishing between St. Omer and Lille, for pilots are very often guided by two canals which are to a certain extent similar, but in this case there is no question of a mistake in the two canals because, he was sorry to tell their lordships, the pilot who flew this machine had never flown to France before and had no knowledge whatever of the geography of the Front.

That is what made it a very serious incident. The pilot's name was Lieutenant Littlewood, originally of the North Lincolnshire Regiment, and the observer was Lieutenant Grant, who was gazetted as a flying officer in the R.F.C. nine days after he was in the hands of the enemy.

Lord Montagu said it would perhaps be as well if he read the following extracts from a letter from one who was at the aerodrome at Farnborough at the time the start to France was made:—

"The War Office sent down and asked for two F.E. pilots, the machines being F.E. in which the engines were placed to fly them over-seas. Owing to an error in the delivery of the message it was understood that the pilots were to fly ordinary F.E. machines, with the result that in one case an inexperienced pilot was sent. I saw the pilot, who complained that he was not an experienced F.E. pilot, also that he had never been over-seas and was not sure of the way.

"The authorities, who heard all this, took no notice of his complaints and told him to take the machine. Later a report came through that F.E. had crossed the lines at Armentières and disappeared in the direction of Lille. That evening a German wireless *communiqué* stated that the F.E. had landed intact south-west of Lille, the pilot having lost his way. [Lord Montagu said that the somewhat sarcastic German wireless message was to this effect. While informing us that the officers and machine had landed unhurt at the German aerodrome at Lille, they thanked us for the engine and plane, which, they said, would be 'most useful' to them.] Thus it will be seen that within three hours of its having been taken out of the factory our newest and latest machine was handed over intact to the Huns.

"I should think if you wrote and told — about this he would have somebody's blood, as it is the second time our beauties at the War Office have lost a brand-new machine in the same way. When the V.E. machine was just out, the fourth or fifth we sent over to France was also sent over in charge of a chap who had only just got his wings (flying certificate), and who also didn't know the way, and he landed right on the Lille aerodrome, and handed his machine to the Huns."

Lord Montagu put three questions to the Government:—

Who was responsible for sending this pilot, who was obviously an inexperienced man, with one of our most valuable and latest machines?

Is it a fact that other pilots inexperienced in the geography of the western front have been sent on similar missions?

Will the Government take steps to ensure that such serious mistakes will not take place in the future?

Earl Curzon said the last questions which Lord Montagu had addressed to him were not those which appeared on the paper. To the questions on the paper he would reply. As to the incident in question, Lord Montagu was himself obviously fully acquainted with all the details. He (Lord Curzon) could only give as much information as he had been able to get from the sources available to the Government. The aeroplane to which reference had been made left England on June 1st. The German wireless of June 2nd stated that a British biplane had landed near Lille, no date being mentioned. The pilot and passenger were prisoners in the hands of the Germans. The pilot after crossing the Channel appeared to have lost his way and descended in the German lines. Such incidents had happened before and would happen again, and they were not confined to one side. They had happened to German pilots just as they had happened to our own pilots. He was not clear whether the noble lord had meant to suggest any particular

inference or base on what had happened any particular charge. He believed it was true that the pilot had not gone across the Channel before, but he doubted whether it would be wise to make it the law that no machine should be taken across the Channel, even by a competent pilot, unless he had had experience of that particular route. No doubt in all those cases they would only be too glad to send in the machine a pilot who had done the same job before. But a pilot who had such qualifications might be much more valuable at the front than employed in this country to take machines over to France. This was one of the risks which had to be run in aerial warfare. In the present case we had lost a valuable machine. He could, however, give no undertaking that such incidents would not recur.

Lord Montagu said there were two other pilots available on the morning in question. At any rate that was his information from very competent sources. He would like to know why this particular man was chosen to fly over with such a valuable machine. He thought that was a very serious matter, and he was sure equally serious notice would be taken of it.

G.P.O. Ladies and Air Raids.

In his speech on the Post Office Estimates in the House of Commons, on Monday, the Postmaster-General, Mr. Joseph Pease, paid a well-deserved tribute to the female workers in connection with air raids. He said:—

"In connection with Zeppelin raids, the work of the women who have come forward voluntarily to do duty at night deserves, I think, very high praise. Hundreds of women have thus come forward. When Zeppelin raids have been anticipated, and sometimes when they have been going on, these women have come out of their homes, and even when bombs were dropping, gone to their positions in the various exchanges. They have played an important part in an organised scheme of air-raid warnings, and in gallantry and self-sacrifice they have set a good example to the whole country."

Post Office Air Raid Policies.

ANOTHER interesting point in the same speech was that the scheme organised by the late Postmaster-General in connection with insurance against Zeppelin raids found great favour with the public. Up to June 21st policies, varying from £25 to £75, to the number of 168,000 have been taken out for the insurance of property to the amount of £1,600,000, whilst the premiums paid under this insurance scheme amount to £10,000.

The Lost Aeroplane.

IN connection with his statement in the House of Lords, Lord Montagu has written the following letter to Superintendent Littlewood, father of Lieutenant Littlewood:—

"It may interest you to know that at Chelsea Town Hall I publicly expressed regret at the unfortunate occurrence to your son, and also sympathy with yourself and family in your son having been made prisoner in Germany. I only say this to remove any misconception there may be on your part as to my attitude.

"In my opinion, blame for what happened should not be laid to your son, but on those who, despite his justifiable protest, despatched him to France on a machine with which he was not properly acquainted, with maps that he did not find easy to read, and without his having had sufficient experience of geography in lines in France to ascertain exactly where he was.

"I am sorry that any reflection should have been cast by some people on your son as regards his skill and patriotism, for I feel sure from what I have heard that he was a promising officer, and I hope will live many years after the war to do good work for his country."

Lord Montagu and the Air Services.

IN the course of an address on aerial matters at the Chelsea Town Hall last week, Lord Montagu said that as to the inquiry into the administration of the R.F.C., it struck him as somewhat of a scandal that men like General Henderson and his able staff should be devoting a great amount of energy in defeating people possibly not worth defeating, and taking their energies away from the prosecution of their duties, which were of far more importance.

He was inclined to think that departmental jealousy, up to a point, was right in so far as it led to efficiency, but if it led in times of war to energies being devoted to quarrelling with their own people, then the departmental jealousy amounted almost to a criminal proceeding. At the present moment we had two more or less disunited air services and a good deal of jealousy, and whether it was possible to carry out a combination of two services in time of war was a very vexed question. The ideal for which they should all strive was towards making an Imperial Air Service. In future some of our finest pilots and flying machines would come from the Dominions.

THE SOCIETY OF BRITISH
AIRCRAFT CONSTRUCTORS.

THE first Ordinary General Meeting of the Society of British Aircraft Constructors, Ltd., was held at the Hotel Cecil on Friday, June 23rd last, the Chairman of the Society, Mr. H. White Smith, presiding. The representatives of nearly all the members of the Society were present.

The Chairman stated that there were present representatives both of the ordinary and of the associate members of the Society, and explained that the meeting was being held in accordance with the Society's articles of association, which provided that the first ordinary general meeting should be held not later than three months after incorporation. The Society was incorporated on March 29th last.

There was, the Chairman said, only one item of formal business to be transacted at that meeting, viz., the appointment of auditors for the current year, but he would take the opportunity of making a few remarks with regard to the Society's affairs which he thought would be of general interest. All the British companies and firms constructing aircraft, and practically all those constructing aero-engines, had become ordinary members of the Society, and a list of ordinary members had been sent out to every member with the notice of the meeting. Since then two further companies, viz., the Eastbourne Aviation Co., Ltd., and the Gnôme and Le Rhone Engine Co., had been elected. In addition, several firms engaged in the manufacture of important accessories, including the propeller-making firms, had been elected to associate membership. It would, no doubt, be a source of gratification to members that the Society was so fully representative of the British aircraft industry, and he might add that a considerable number of inquiries for particulars of membership had been received from firms interested in the industry, and a short prospectus—a print of which had been sent to every member—had been prepared setting out the Society's constitution and objects.

The Chairman proceeded to state that the Committee of Management, which was appointed at the last meeting of the Council to conduct the general business of the Society, had been attending to the Society's affairs closely. It had held fortnightly meetings, and a considerable amount of business had been done. He would instance, in particular, the important subject of excess profits both in connection with the Finance Act of last year and the Finance Bill of the present session, and the negotiations which were taking place with the Ministry of Munitions. These matters would be dealt with in detail at the Council meeting which was to follow the present general meeting.

The question of acceleration of output was another important matter which would be dealt with at the Council meeting, as also would the enquiries which the Special Arbitration Tribunal under the Munitions of War Act of 1916 had asked the Society to make with reference to women's wages.

The meeting would be interested to know, the Chairman proceeded, that all Government Departments concerned had been notified of the incorporation of the Society, and it was recognised that the Society was the representative body to look to on any question affecting the aircraft industry.

The Chairman then submitted to the meeting the name of Messrs. George A. Touche and Co., chartered accountants, who were advising the Society in connection with the excess profits question, as the Society's auditors for the coming year, and on the proposal of Mr. R. O. Cary (The Sopwith Aviation Co., Ltd), seconded by Mr. Hamilton Fulton (Martinsyde, Ltd.), Messrs. G. A. Touche and Co. were appointed auditors to the Society accordingly.

The Chairman pointed out that the present Council of the Society consisted of the representatives of those firms who joined the Society in the beginning. He was going to propose to the Council at their meeting that the representatives of the ordinary members who had joined since should be added to the Council, which would then be fully representative of the ordinary members of the Society. It would, however, be necessary to consider the question of the representation of associate members on the Council, and he suggested that this matter should be left over for further consideration.

This completed the business of the Ordinary General Meeting, and a meeting of the Council was held immediately afterwards, at which the following gentlemen were added to the Council :—

Mr. W. H. Allen (representing Messrs. W. H. Allen, Son and Co., Ltd.).

Capt. I. F. Fairbairn Crawford (representing Sir W. G. Armstrong Whitworth and Co., Ltd.).

Mr. C. T. Pullinger (representing Arrol-Johnston, Ltd.).

Mr. A. H. R. Fedden (representing Messrs. Brazil, Straker and Co., Ltd.).

Mr. N. G. Gwynne (representing Messrs. Gwynnes, Ltd.).
Mr. C. Smith representing The Eastbourne Aviation Co., Ltd.).

Mr. G. F. Joseph (representing Portholme Aerodrome, Ltd.).
The Council dealt with various matters which were on the agenda.

Wires and Cables for Aircraft.

WHEN requiring any article on which a great deal depends it pays in the long run to go to specialists—those who know the requirements which have to be met, and the capabilities of the goods which they supply. In connection with the wire, &c., for the stays of aeroplanes, Messrs. George Cradock and Co., Ltd., have made, as our readers know, a special study of the strains and stresses imposed, and their first pamphlet on the subject has been found very useful by designers and manufacturers. They have now produced a new edition, which includes details of a number of strands and cables which have come into use since the original list was compiled. Tables are given showing the dimensions, weight, breaking strain, &c., of the various cables, and the construction of the cable is illustrated. Copies of the list may be obtained by those interested, who apply to Messrs. George Cradock and Co., Wakefield.

For Bronze and White Metal Castings.

MESSRS. Y. E. S., LTD., are now fully installed in their new foundries at Upper Wortley Road, Wortley, Leeds, and are very fully occupied at present in supplying the leading engine builders with Y. E. S. aero bronze, cast by the "Eatonia" process, for bushes of aero engines of various types—a trade which has developed and is developing very rapidly with them.

The firm also supply castings to any size and weight in either gunmetal, brass or phosphor-bronze to any specification and inspection, and their new foundries are very spacious, and have been laid down especially for the economical handling and rapid production of this class of work, so that notwithstanding being so busy on Government work they are able to give just such delivery as may be required on a considerable output.

A.S. Co.'s Developments.

THE phenomenal success of the Aircraft Supplies Co., Ltd., under the management of Mr. Mansfield, has necessitated the opening of a West-End branch. For this purpose offices have been taken at 166, Piccadilly, W., and we understand that Mr. Bernard Isaac will be associated with the firm in this new departure.

A G.E.C. Move in Ireland.

THE G.E.C., Ltd., of London and Witton, Birmingham, &c., advise us that the address of their Cork branch—from whence all orders from the south of Ireland are attended to—has now been altered to 76, Grand Parade.

NEW COMPANIES REGISTERED.

Elliott Brothers (London), Ltd.—Capital £90,000, in £1 shares. Acquiring business carried on by W. O. Smith, W. S. Smith, G. K. B. Elphinstone, and L. W. Smith at Century Works, Lewisham, and 1, Central Buildings, Westminster, as Elliott Brothers, mechanical and electrical engineers, &c. First directors, W. O. Smith, G. K. B. Elphinstone, and L. W. Smith.

Fox Aeronautical Synd., Ltd., 14, Bedford Street, Covent Garden, W.C.—Capital £2,500, in £1 shares. Acquiring from T. Waterhouse, L. C. Woollidge, and A. Fox the benefit of an invention relating to an impregnating composition or process for proofing fabrics, wire mesh, wood, leather, and other materials against the action of air, gas, water, and fluids; to manufacture and deal in aerial conveyances and component parts thereof, &c. First directors, T. Waterhouse, A. Fox, L. C. Woollidge, and E. P. Moorhouse.

Aeronautical Patents Published.

Applied for in 1915.

Published July 6th, 1916

- 8,649. E. R. CALTHROP. Safety spring slings or suspension-devices for use with parachutes.
9,370. S. L. WALKDEN. Aeroplanes, &c.

Applied for in 1916.
The numbers in brackets are those under which the specifications will be printed and abridged, &c.

- 1,857. R. CAUDRON. Fixing or anchoring means for ropes, cables, &c.
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